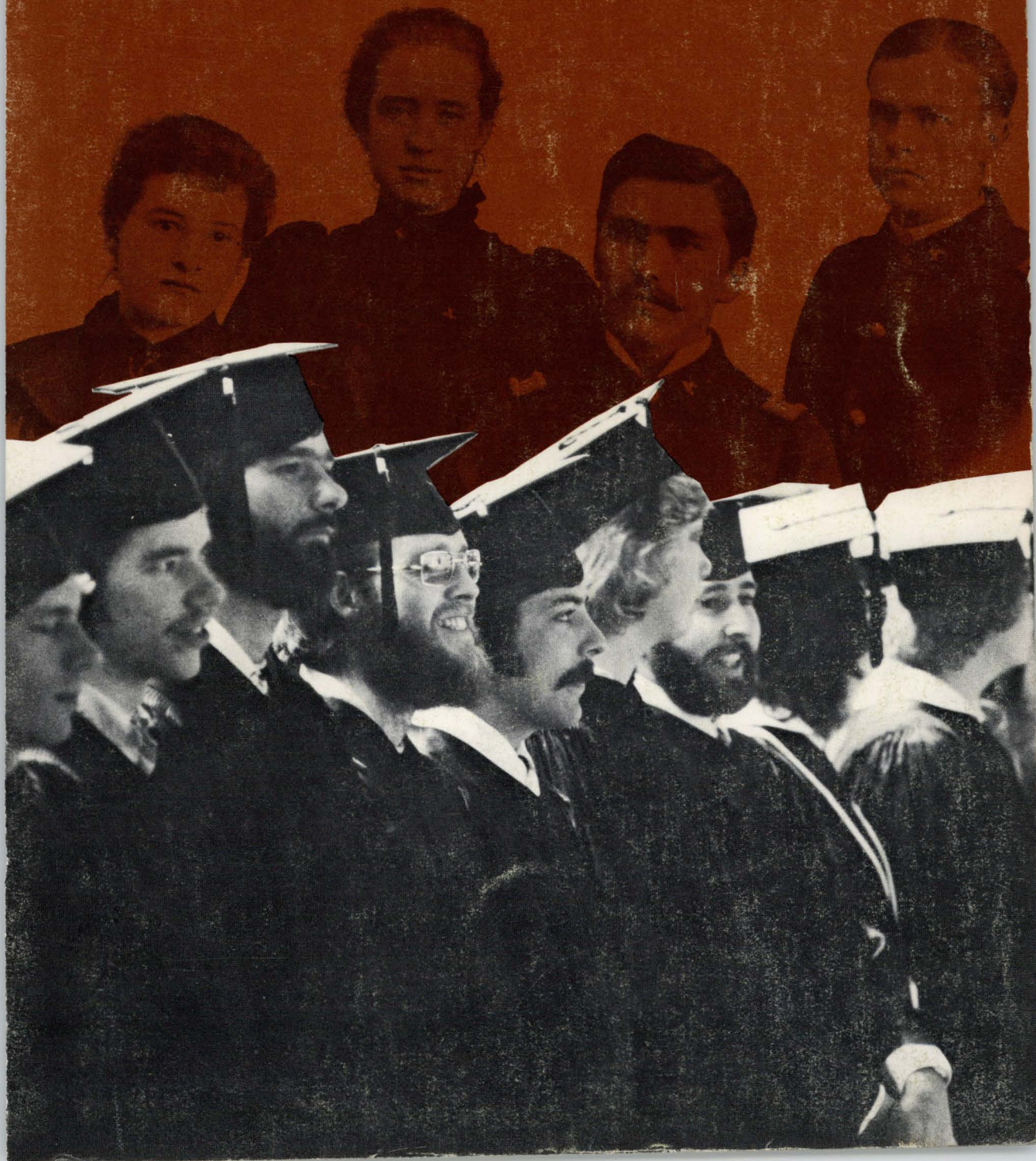
Bloomsburg

University of Idaho

Bulletin 1976/77

General Catalog



In this Bicentennial year, we honor the generations of students who have attended the University of Idaho.

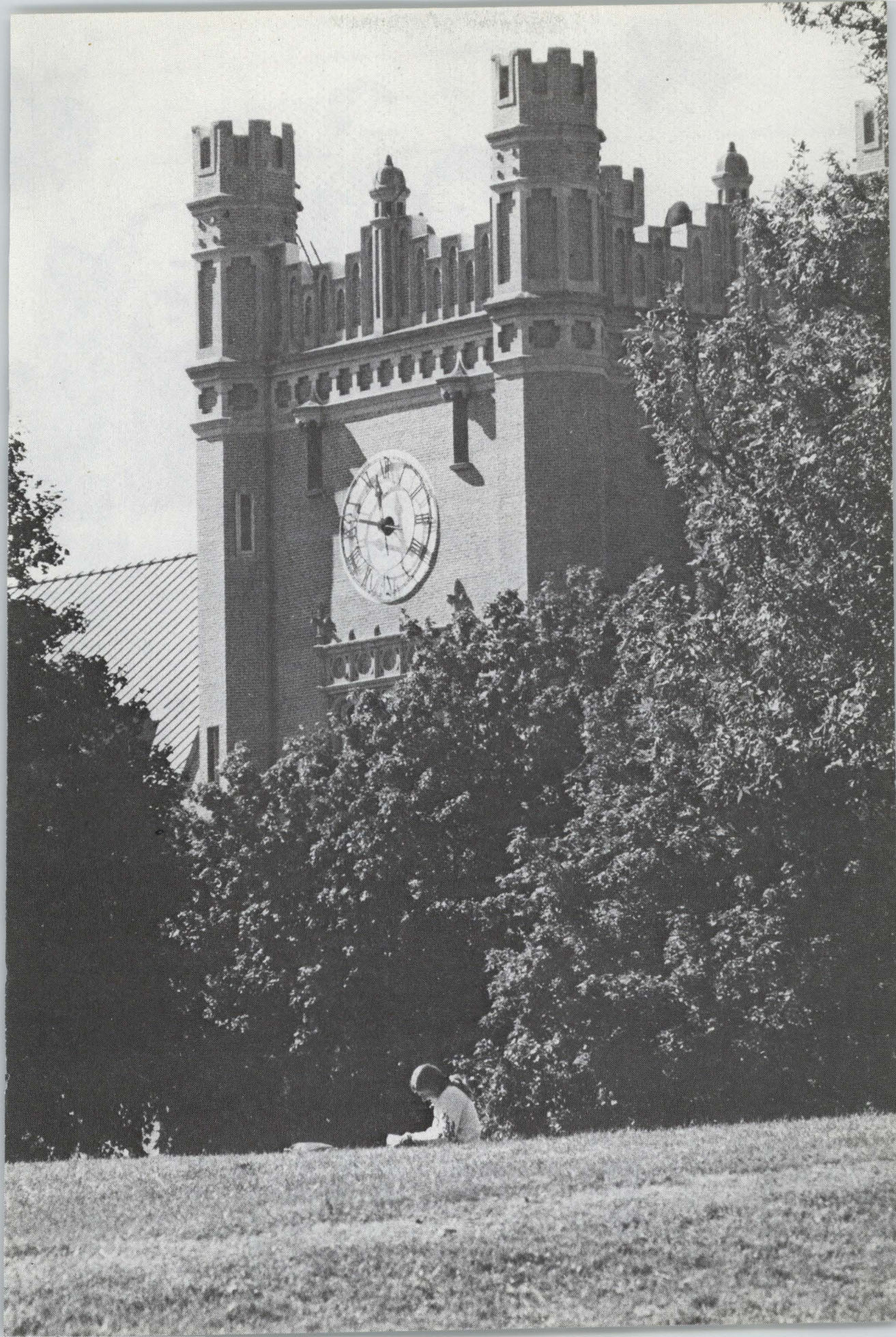
Many of the photographs in this year's catalog are from the Archives of the University Library, either from the Barnard-Stockbridge Collection, or from the general collection of photographs taken of the campus and students during the university's eighty-seven year history.

It is the policy of the University of Idaho to afford equal opportunities in education and personnel relations to qualified people regardless of their race, color, age, national origin, religion, or sex.

The university is an equal opportunity and affirmative action employer.

Published four times a year by the University of Idaho in January, February, March, and July. Second class postage paid at Moscow, Idaho 83843

Front cover: A portion of the 1976 commencement class superimposed over the first graduating class at the university in 1896.



Correspondence Directory

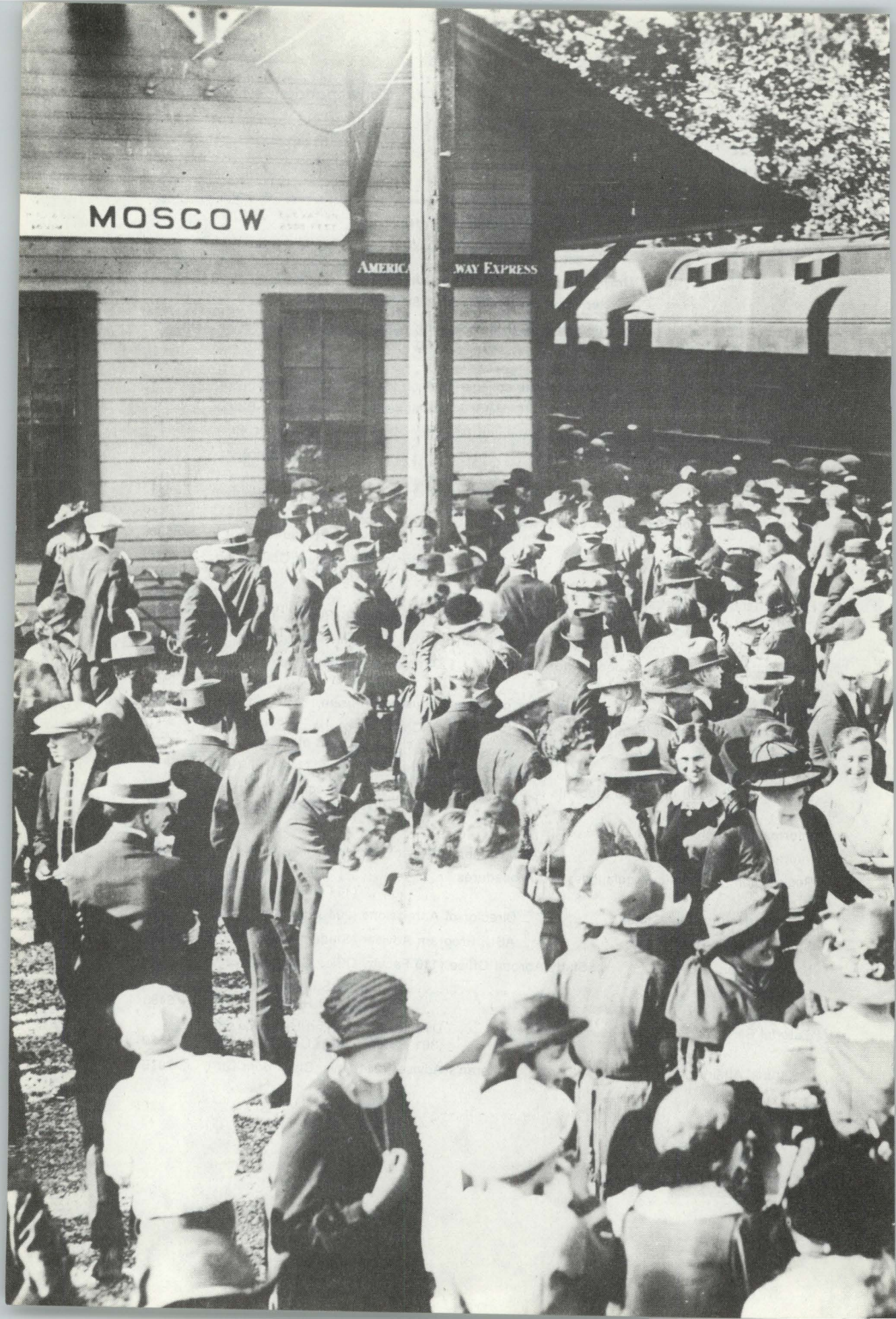
University of Idaho, Moscow, Idaho 83843

Telephone: (Area Code 208) 885-6111

Further information may be obtained from the following officers. On campus dial the number listed. Off campus dial the prefix 885 and the number listed.

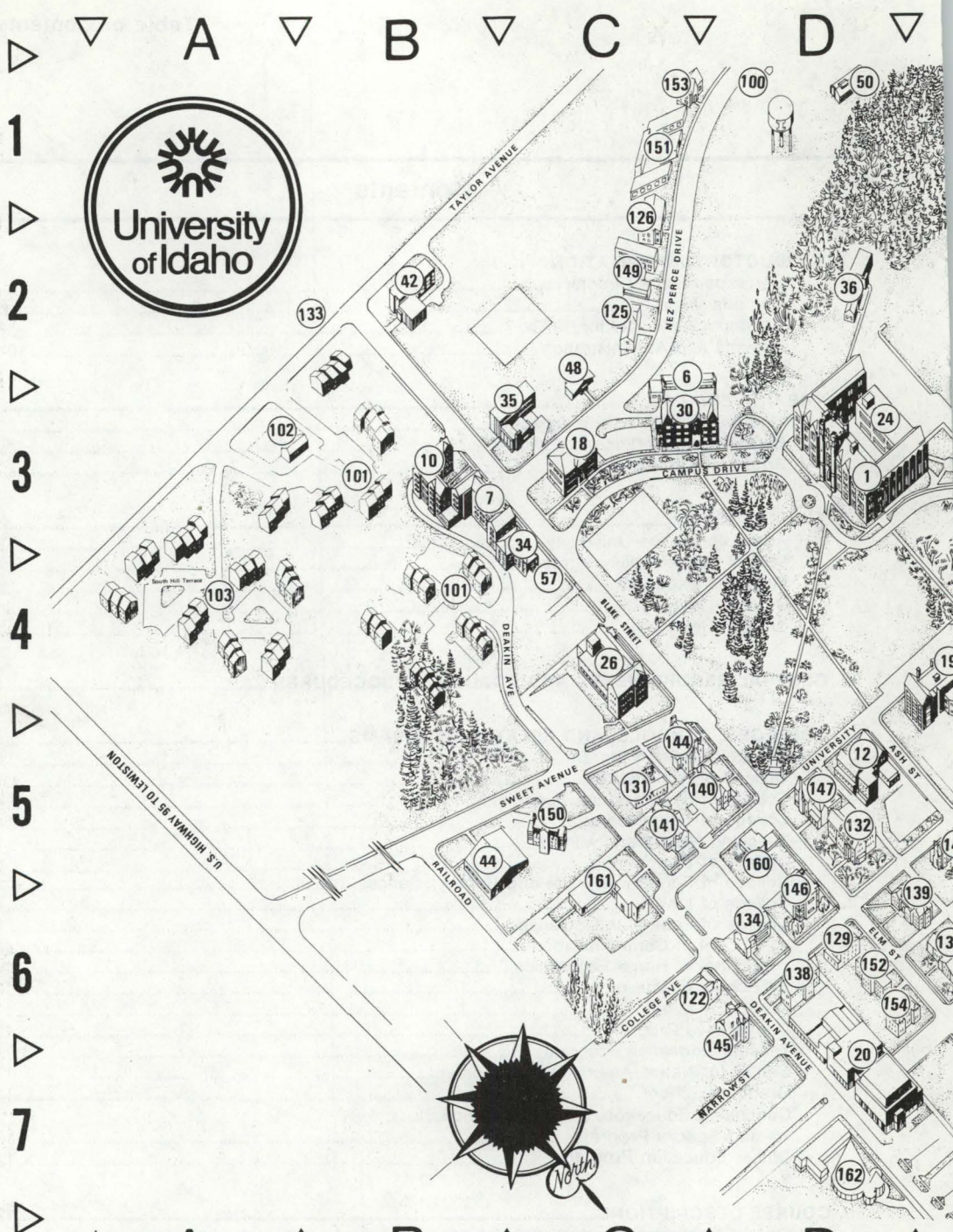
Academic Matters	Dean of the college in which the student plans to major	———
Admissions	Director of Admissions (204 Ad. Office Bldg.)	6326
Adult Education	Director of Continuing Education (112 Guest Residence Ctr.)	6486
Associated Students (student government)	Student Union Bldg.	6331
Career Placement	Director of the Career Planning and Placement Ctr. (Faculty Office Complex East—Lobby)	6121
Continuing Education (correspondence/extension)	Director of Continuing Education (112 Guest Residence Ctr.)	6486
Counseling and Testing	Director of the Student Counseling Ctr. (309 Univ. Classroom Ctr.)	6716
Employment (on-campus)		
Full time	Personnel Officer (Personnel & Purchasing Bldg.)	6496
Part time	Director of Student Financial Aids (228 Univ. Classroom Ctr.)	6312
Financial Aids (scholarships, loans, work/study)	Director of Student Financial Aids (228 Univ. Classroom Ctr.)	6312
General Studies	Director of General Studies Program (111 Ad. Bldg.)	7037
Graduate Assistantships/Financial Aid	Chairman of the department in which the student plans to major	———
Graduate School	Dean of the Graduate School (111 Morrill Hall)	6243
Housing — Married or Single Students	Director of Housing (Wallace Residence Ctr.)	6571
Information Center		6111
International Students	Foreign Student Adviser (241 Univ. Classroom Ctr.)	6757
Registration, Academic Regulations, and Procedures	Registrar (104 Ad. Office Bldg.)	6731
Resident/Nonresident Status	Director of Admissions (204 Ad. Office Bldg.)	6326
Student Activities	ASUI Program Adviser (Student Union Bldg.)	6484
Study Abroad	Study Abroad Office (110 Faculty Office Complex West)	6480
Summer Sessions	Director of Summer Sessions (114 Guest Residence Ctr.)	6486
Tutorial Services	Director of Learning Resource Ctr. (301 Faculty Office Complex West)	6520
Veterans' Affairs	Veteran's Adviser (241 Univ. Classroom Ctr.)	7979

Facing page: Some members of the university faculty in 1900.

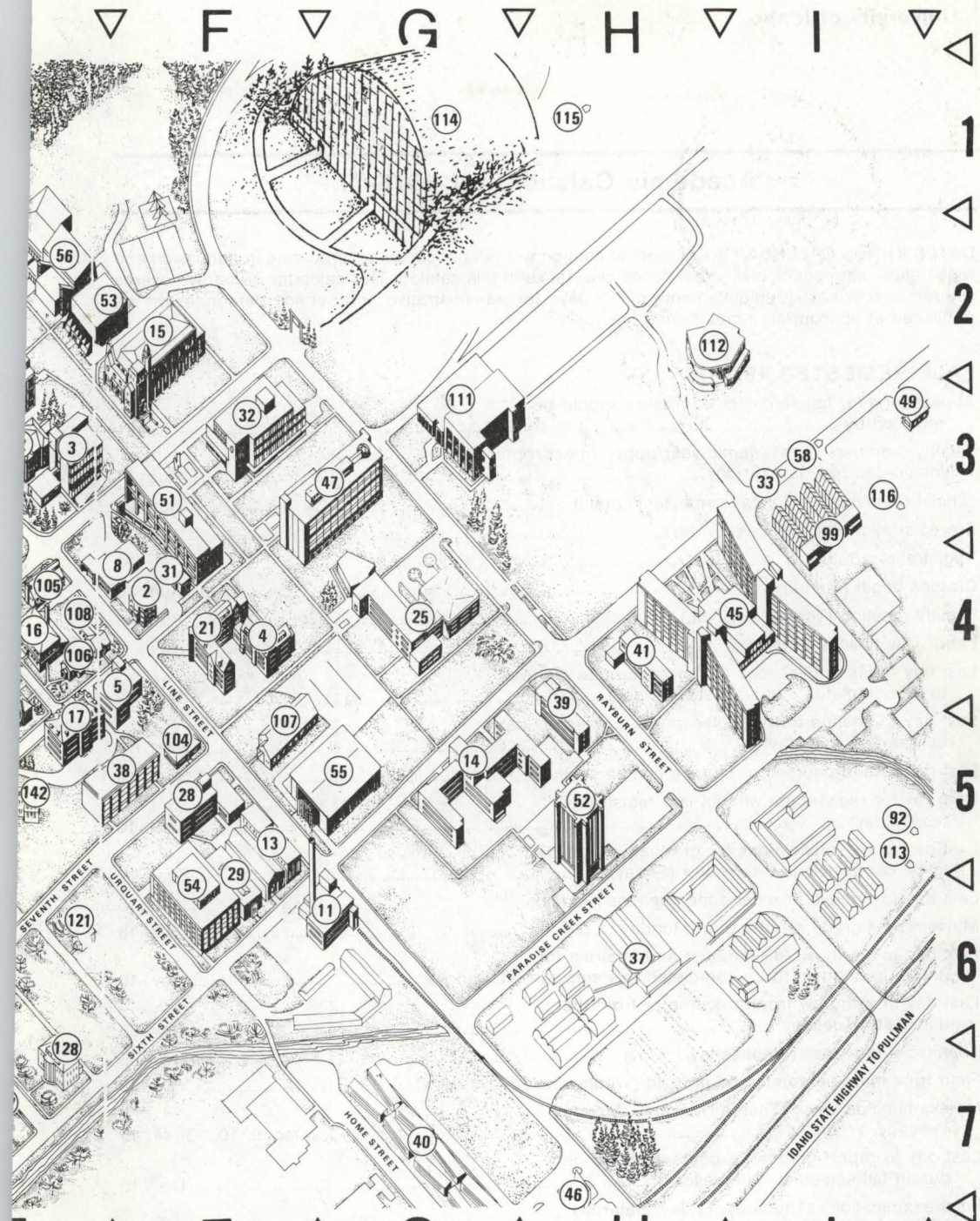

MOSCOW
AMERIC
WAY EXPRESS

Contents

Facing page: Students arriving at the train depot in 1922.



1 Administrative Building 3D
24 Administrative Office 3D
8 Agricultural Engineering 4F
25 Agricultural Science 4G
10 Alumni Center 3B
58 Animal Research Pavillion (31)
3 Art and Architecture 3E
22 Art and Architecture South 3E
54 Buchanan Engineering Lab 6F
2 Communications 4F
92 Dairy Research Center (51)
102 Day Care Center 3A
105 Dramatics (U-Hut) 4E
109 Dramatics Annex 4E
43 College of Education 3E
Engineering Complex 5&6F
49 Engineering Isotopes Lab 31
21 Faculty Office Complex 4F
4 Faculty Complex West 4F
5 Food Research Center 4F
55 College of Forestry 5G
13 Gauss M Engr Lab 5F
100 Golf Course (1D)
6 Graduate Art Building 3C
99 Greenhouse 31
7 Guest Residence 3C
30 Home Economics 3C
48 Home Management House 2C
114 Kibbie - ASUI Activity Center (Dome) 1G
44 Industrial Arts 58
46 Information Center 7H
28 Janssen Engineering 5F
29 Johnson E Engr Lab 6F
108 Journalism 4E
111 College of Law 3G
32 Library 3F
19 Life Sciences 4E
113 Manis Ento Res Lab (51)
15 Memorial Gym 2F
38 College of Mines 5F
17 Morrill Hall 5E
26 Music 4C
18 Music Annex (Ridenbaugh) 3C
122 Native American Center 6D
107 Navy Building 5F
40 Park Village 7G
112 Performing Arts Center 2H
104 Personnel and Purchasing 5F
37 Physical Plant 6H
47 Physical Science 3G
11 Power Plant 6G
50 President's Residence 1D
16 Psychology 4E
36 Radio-TV Center 2D
31 Small Animals Lab 4F
101 South Hill Apartments 3&4B
103 South Hill Ter. Apt. 4A
12 Student Health Center 5D
20 Student Union 7D
106 Student Union Satellite 4E
53 Swimming Center 2E
121 Talisman House 6E
115 Track (1H)



51 University Classroom Center 3F
9 University Gallery 5E
33 Veterinary Res. Lab (31)
56 Women's Health Ed. 2E
16 Wicks Mem. Baseball Field (31)

RESIDENCE HALLS
42 Campus Club 2B
27 Gault-Upham 5G
39 McConnell 5H
41 Shoup 4H
34 Steel House 4C
52 Theophilus Tower 5H
45 Wallace Complex 4I

SORORITIES
25 Alpha Chi Omega 2C
26 Alpha Gamma Delta 1C
127 Alpha Phi 7E
128 Delta Delta Delta 7E
129 Delta Gamma 6D
130 Gamma Phi Beta 6E
131 Kappa Alpha Theta 5C
132 Kappa Kappa Gamma 5D
133 Lambda Delta Sigma 2B
134 Pi Beta Phi 6D

FRATERNITIES
57 Alpha Kappa Lambda 4C
138 Alpha Tau Omega 6D
139 Beta Theta Pi 6D
140 Delta Chi 5D
141 Delta Sigma Phi 5C
142 Delta Tau Delta 5E
144 Kappa Sigma 5C
145 Lambda Chi Alpha 6D
146 Phi Delta Theta 6D
147 Phi Gamma Delta 5D
148 Phi Kappa Tau 5E
149 Pi Kappa Alpha 2C
150 Sigma Alpha Epsilon 5C
151 Sigma Chi 1C
152 Sigma Nu 6D
153 Tau Kappa Epsilon 1C
154 Theta Chi 6C

RELIGIOUS INSTITUTES
160 Campus Christian Center 5D
161 LDS Institute 6C
162 St. Augustine's Catholic Center 7D

Academic Calendar for 1976-77

DATES IN THIS CALENDAR are subject to change without notice; those appearing in admission and registration instructions take precedence over those in this catalog. This calendar primarily governs academic activities. Announcements of holidays for administrative and service personnel will be published at appropriate times during the year.

FALL SEMESTER 1976-77

Applications for fall-semester admission should be received by ..... Aug. 1

Faculty members on academic-year appointment report for on-campus duty (Friday) ..... Aug. 27

Official opening date for fall semester (Friday) ..... Aug. 27

Preregistration conferences (Friday) ..... Aug. 27

Registration (Saturday) ..... Aug. 28

Classes begin (Monday) ..... Aug. 30

Faculty meeting (Tuesday, 4 p.m.) ..... Aug. 31

Labor Day holiday (Monday) ..... Sept. 6

Last day to file applications for baccalaureate degrees to be completed this semester (Friday) ..... Sept. 10

Last day to change from regular-grade to pass-fail basis or visa versa (Friday) ..... Sept. 10

Last day to add courses or change course sections (Friday) ..... Sept. 10

Last day for registration without late-registration fee (Friday) ..... Sept. 10

Last day to file applications for graduate degrees to be completed this semester (Friday) ..... Sept. 17

Last day to remove or extend incompletes (Friday) ..... Oct. 8

Midsemester grade reports due (Monday, 1 p.m.) ..... Oct. 18

Last day to file thesis/dissertation and abstract for graduate degrees to be completed this semester (Tuesday) ..... Nov. 16

Last day to withdraw from a course or from the university (Tuesday) ..... Nov. 23

Thanksgiving recess (Wednesday-Friday) ..... Nov. 24-26

Field trips must be completed prior to (Wednesday, 8 a.m.) ..... Dec. 8

No-examination week (Thursday, Friday, Monday, Tuesday, Wednesday) ..... Dec. 9, 10, 13, 14, 15

Last day to report grades for courses challenged during fall semester (Wednesday) ..... Dec. 15

Final examinations (Thursday, Friday, Saturday, Monday, Tuesday) ..... Dec. 16, 17, 18, 20, 21

Close of fall semester (Tuesday, 5 p.m.) ..... Dec. 21

Semester grade reports due (Friday, 5 p.m.) ..... Dec. 24

Special program sessions ..... Dec. 27-Jan. 7

SPRING SEMESTER 1976-77

Applications for spring-semester admission should be received by (Wednesday) ..... Dec. 15

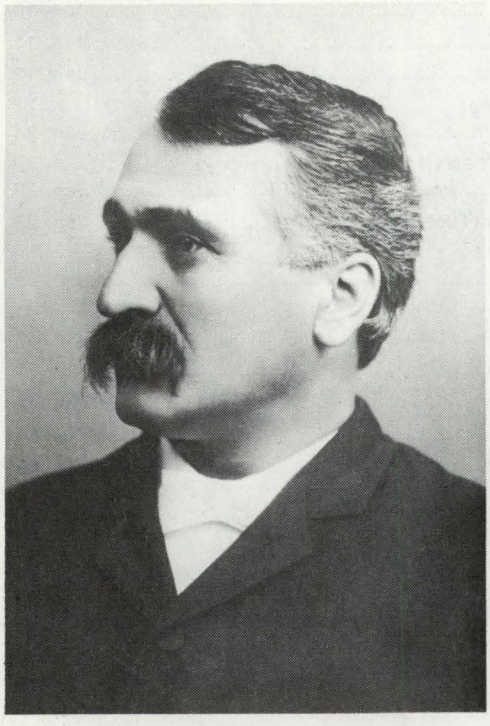
Official opening date for spring semester (Monday) ..... Jan. 10

Preregistration conferences (Monday) ..... Jan. 10
Registration (Tuesday) ..... Jan. 11
Classes begin (Wednesday) ..... Jan. 12
Last day to file applications for baccalaureate degrees to be completed this semester (Monday) ..... Jan. 24
Last day to change from regular-grade to pass-fail basis or visa versa (Tuesday) ..... Jan. 25
Last day to add courses or change course sections (Tuesday) ..... Jan. 25
Last day for registration without late-registration fee (Tuesday) ..... Jan. 25
Last day to file applications for graduate degrees to be completed this semester (Monday) ..... Jan. 31
Washington's Birthday holiday (Monday) ..... Feb. 21
Last day to remove or extend incompletes (Tuesday) ..... Feb. 22
Midsemester grade reports due (Monday, 1 p.m.) ..... Mar. 14
Spring recess (Monday-Friday) ..... Mar. 14-18
Last day to file thesis/dissertation and abstract for graduate degrees to be completed this semester (Monday) ..... Apr. 11
Last day to withdraw from a course or from the university (Friday) ..... Apr. 15
Field trips must be completed prior to (Monday, 8 a.m.) ..... May 2
No-examination week (Monday-Friday) ..... May 2-6
Last day to report grades for courses challenged during spring semester (Friday) ..... May 6
Final examinations (Monday-Friday) ..... May 9-13
Close of spring semester (Friday, 5 p.m.) ..... May 13
Commencement (Saturday) ..... May 14
Semester grade reports due (Monday, 5 p.m.) ..... May 16
Special programs sessions ..... May 16-June 10

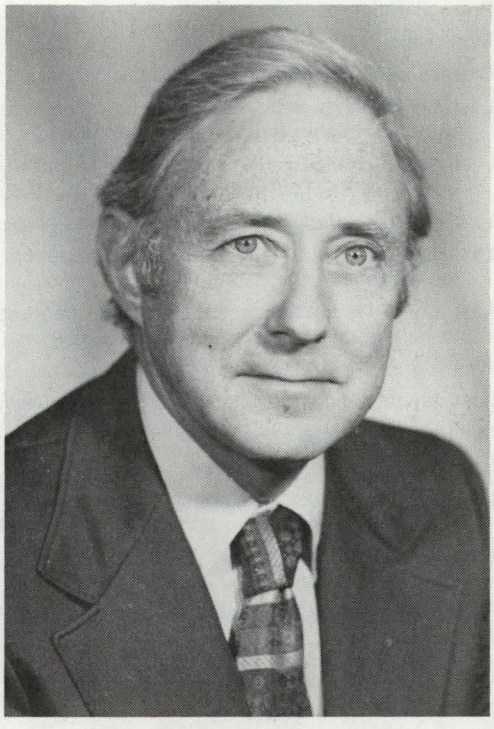
SUMMER SESSIONS 1977

Forestry Summer Camp ..... May 16-July 8
Geology Summer Camp ..... to be announced
Applications for regular eight-week summer session should be received by (Monday) ..... May 23
Memorial Day holiday (Monday) ..... May 30
Official opening date for regular eight-week summer session (Monday) ..... June 13
Registration (Monday) ..... June 13
Classes begin (Tuesday) ..... June 14
Classes meet this date (Saturday) ..... June 18
Independence Day holiday (Monday) ..... July 4
Last day to remove or extend incompletes (Monday) ..... July 25
Summer sessions close (Friday, 5 p.m.) ..... Aug. 5
Special programs sessions ..... Aug. 8-19

The academic regulations and requirements in this bulletin cover the catalog year and are subject to change without notice. The catalog year begins with the official opening date of the fall semester and ends with the opening of the succeeding fall semester.



FRANKLIN B. GAULT
First President of the University
1892 - 1898



ERNEST W. HARTUNG
Twelfth President of the University
1965 -

University Administration

Ernest W. Hartung, *Ph.D* ..... *President of the University*

Robert W. Coonrod, *Ph.D* ..... *Academic Vice President*

Sherman F. Carter, *Ph.D* ..... *Financial Vice President/Bursar*

Thomas E. Richardson, *Ph.D* ..... *Vice President for Student and Administrative Services*

Ronald W. Stark, *Ph.D* ..... *Coordinator of Research*

Warren S. Owens, *M.A.L.S.* ..... *Dean of Instructional Services/ Director of Libraries*

Matt E. Telin, *M.Ed.* ..... *Registrar*

Frank Young, *M.S.* ..... *Director of Admissions*

Regents of the University of Idaho

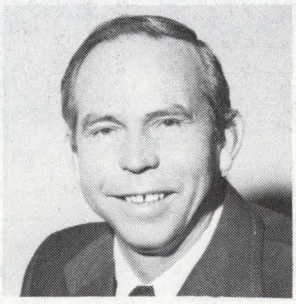
April 28, 1976

EDWARD L. BENOIT
President
Twin Falls (1977*)

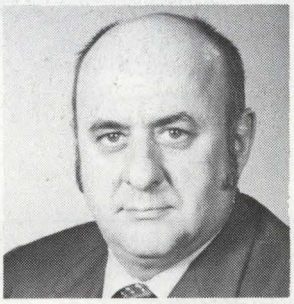
A. L. ALFORD, JR.
Vice President
Lewiston (1978*)

LENO D. SEPPI
Secretary
Lava Hot Springs (1979*)

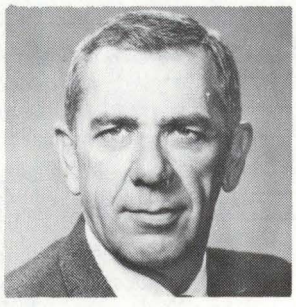
JANET S. HAY
Nampa (1979*)



J. CLINT HOOPES
Rexburg (1980*)



J. P. MUNSON
Sandpoint (1981*)



JOHN W. SWARTLEY
Boise (1980*)

ROY E. TRUBY
State Superintendent of Public Instruction
Boise (Ex Officio)

---

* Date current appointment expires.

An Act

Entitled an Act to Establish the University of Idaho.

Be it enacted by the Legislative Assembly of the Territory of Idaho, as follows:

Section 1.

There is hereby established in this Territory, at the Town of Moscow, in the County of Latah, an institution of learning by the name and style of "The University of Idaho".

Section 2.

The government of the University shall vest in a Board of Regents, to consist of nine members, chosen from the Territory at large, which Board the Governor shall nominate, and by and with the advice and consent of the Legislative Council appoint: The term of office of said Regents shall be two years from the first Monday in February in the year in which appointed.

University not otherwise appropriated; No Regent shall receive any pay, mileage or per diem, except as above prescribed.

Section 20.

This Act shall take effect and be in force from and after its passage.

Passed the House on the 24th day of January 1889

H. Z. Burkhart

Speaker of the House

Passed the Council on the 25th day of January 1889

J. P. Clough

President of the Council

Approved Jany 30" 1889

E. A. Stevenson

Governor

Received January 30th 1889.

E. J. Curtis.

Secretary of Idaho

Top: The first administration building, circa 1900 (the building was destroyed by fire in 1906)
Bottom: Two pages from the Idaho Territorial Act that created the University of Idaho in 1889.

The University

A MULTIPURPOSE institution, the University of Idaho was founded in 1889 by an act of the fifteenth legislature of the Idaho Territory. This statute, commonly known as the university's charter, became a part of Idaho's organic law by virtue of its confirmation under article IX, section 10, of the state constitution when Idaho was admitted to the union in 1890. As provided in the territorial act and the state constitution, the ultimate authority for the government of the university is vested in an appointed board of regents which is empowered to appoint the university president who also serves as president of the faculty and of the several constituent faculties. In addition, the president serves as the "executive head of the instructional force" and gives "general direction to the instruction and scientific investigation of the university." Under the charter, the immediate government of the university is entrusted to the faculty. The tradition of consultative and mutual responsibility among the faculty, president, and regents has continued to the present time.

When the University of Idaho opened its doors, October 3, 1892, there were about thirty students and two professors, one of whom, Franklin B. Gault, also served as president. By 1975, the enrollment had grown to more than 7,200 students representing a broad spectrum of social and economic backgrounds. Although most of the students come from Idaho, every state and approximately forty foreign countries are represented on campus. Since its founding, the university has granted over 36,000 degrees.

Mission, Functions, and Objectives

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 mission, functions, and objectives of the University of Idaho were redefined November 1, 1973, by the State Board of Education/Board of Regents of the University of Idaho as follows:

Mission. In the widest sense, the mission of the University of Idaho, a publicly supported, land-grant institution, is to serve the people of the state and nation as a major center of learning for the advancement, preservation, dissemination, and use of knowledge. Deriving from this multifaceted mission 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 of the University. Since its founding, the functions of the University of Idaho have been viewed as threefold—teaching, research, and service. The broad objectives relating to these functions are: (a) 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, prepared for a lifetime of learning and equipped with a sound general education as well as the professional and technical skills needed by society; (b) 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; and (c) 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 of Idaho. As a part of a coordinated state system of higher education which encompasses the senior institutions and the public community colleges, the university historically has had certain unique functions. Specifically, the university has the responsibility to serve as: (a) the land-grant institution for the state of Idaho, with the exclusive responsibility for instruction, research, extension, and public services in the fields of agriculture, forestry, mining, and related areas, as well as the principal responsibility in the field of engineering; (b) the chief research center for the state, and the chief center for research-oriented graduate education; (c) a principal center for professional education, operating fully accredited professional programs in architecture, chemistry, education, engineering, forestry, home economics, law, musical performance, and wildlife and range sciences, and also fulfilling the major responsibility for comprehensive programs in the preparation of public school teachers, administrators, and counselors; and (d) the state's preeminent center for comprehensive graduate programs, with responsibility for the granting of the degree of Doctor of Philosophy. Because of the unique land-grant and Ph.D-awarding functions of the University of Idaho, its faculty members conduct research as a clearly defined professional responsibility.

Specific Objectives. As a means of attaining the broad objectives cited above, the regents and the university community have identified the following specific objectives relating to students, faculty members, the general public, and other institutions of higher education:

Students. In relation to students, the university will provide the opportunity and means of learning, along with encouragement to develop the mind. In particular, the university will: (a) maintain a teaching faculty of the

greatest possible competence and variety of cultural backgrounds, of noteworthy scholarly attainments and promise, motivated to teach; (b) encourage the development and use of effective instructional and advising techniques; (c) foster unhurried personal contact between students and faculty members so that the love of learning may be contagious; (d) keep current and improve the library, museum, laboratory and demonstration equipment, audiovisual apparatus, and collections; (e) consider the needs of students as individuals in the designing of academic programs; (f) foster an academic environment conducive to their mental, physical, and social development and well-being; and (g) provide for student participation in university affairs, both as a means of influencing policy and of gaining experience in the democratic participatory process.

Faculty. In relation to the faculty, the university will: (a) gather into one community a group of capable and committed scholars and assure them maximum freedom of both thought and academic activity; (b) provide the facilities for their continuing study and research, and for their teaching; (c) encourage scholarly and creative output, such as publications, performances, creation of works of art, and development of new procedures and superior biological strains; (d) maintain adequate salaries and other benefits, as well as an organizational structure conducive to good faculty morale; (e) foster improvement in teaching techniques, including multidisciplinary approaches to contemporary problems; (f) encourage faculty participation in professional and civic activities; and (g) provide for the effective functioning of faculty governance in accordance with the principles set forth in the university's charter and the Constitution of the Faculty.

General Public. In relation to the general public, the university will: (a) apply the benefits of knowledge by making expert faculty available to individuals or organizations for consultation or research on problems in the state, by maintaining programs of public service for northern Idaho, as well as extension and public services for the entire state in fields exclusive to the University of Idaho, and by participating in continuing education programs; (b) contribute to the cultural life of the state by such means as publications, symposia, concerts, dramatic productions, and art and museum exhibits; (c) provide for and foster communication with various segments of the public, e.g., through advisory bodies, so that the citizenry may be aware of the values accruing to the state of Idaho from her institutions of higher education and encourage support for the educational system; and (d) extend all possible assistance to the elementary and secondary schools of the state.

Other Institutions of Higher Education. In relation to other institutions of higher education, the university will: (a) cooperate in the coordination of its academic programs with other institutions in the state system of higher education so that the maximum benefit may be realized from special capabilities and unnecessary duplication of efforts may be avoided; (b) cooperate in the encouragement of multiinstitutional research and instructional programs which capitalize upon the areas of special competence and advanced studies; and (c) cooperate in the development of systems for faculty and student exchange for the enrichment of the educational process.

The University Today

The largest division of the university is the College of Letters and Science which offers a broad, liberal education in the arts and sciences coupled with preparation for leadership in the student's selected field of concentration. Other academic divisions include the College of Agriculture, College of Business and Economics, College of Education, College of Engineering, College of Forestry, Wildlife and Range Sciences, College of Law, College of Mines, and the Graduate School. The School of Communication, the School of Home Economics, and the School of Music function within the administrative framework of the College of Letters and Science.

The faculty is composed of many dedicated teachers and scholars who hold advanced degrees from universities throughout the world. Besides teaching, the faculty is actively involved in research, and many faculty members serve the community-at-large through consulting services, lectures, recitals, exhibits, dramatic productions, seminars, and similar activities. Specific examples of research and service agencies associated with the university are the Cooperative Extension Service, the Idaho Water Resources Research Institute, and the Bureau of Public Affairs Research.

Many of the university's facilities are among the best to be found. The new College of Law Building is an excellent example, and the J. E. Buchanan Engineering Laboratory features advanced equipment found in few other institutions in the nation. A further example is the recently completed Forestry, Wildlife and Range Sciences Building, fully equipped for research and instruction, and considered by many to be the best facility of its kind in the country. Architectural honors were also awarded to the Women's Physical Education Building and adjoining Swimming Center.

Within a short drive from the campus are rich

mineral deposits which make the area valuable for the study of mining. Also nearby are mountains, rivers, and semiarid areas, all important to the study of the environmental sciences. The farmlands in the region are well suited for agricultural research, while for the interested student the locale offers much in the way of native American history and artifacts. For students of recreational management, there are wildlands and state and national parks nearby.

The educational climate of the university is enhanced by the proximity of Washington State University in Pullman, only eight miles to the west. The interchange of library materials, programs, and course offerings between the two campuses makes the entire area a true university center.

Outside the classroom, there are many ways in which students may enhance their university experience. In addition to a range of campus-wide social and cultural events, the various living groups hold their own social activities. A large variety of varsity and intramural sports is offered, while dramatic, musical, and dance productions, as well as art and museum exhibits, enrich the total cultural picture.

Some students contribute to the campus newspaper, *The Idaho Argonaut,* which has the distinction of having been free from faculty or administrative control since it was first published in 1898. Others spend time working in the student-owned and operated radio station, KUOI. The Student Union Building is the headquarters for many of these activities and for student government. In recent years students have gained substantial representation on most standing committees of the faculty as well as the Faculty Council, and thus are active participants in the governance of the university.

Assistance, whether academic, vocational, or personal, can be obtained from various sources, including the Office of Student Advisory Services and the Student Counseling Center. The Nightline Drug Education Team, structured from the Nightline organization, is headquartered on campus in the Talisman House, which is an involvement center for drug education and other activities of interest to the university community. Nightline, an independent telephone service for advice on problems of immediacy, is always available for students and Moscow residents. Furthermore, three religious institutes are located adjacent to the campus, and courses may be taken through these centers for college credit.

Accreditation

The University of Idaho is a member of the American Association of Land-Grant Colleges and Universities, the National Association of State Universities, and the National Commission on Accrediting, and is accredited by the Northwest Association of Secondary and Higher Schools. The following organizations have granted additional approval or accreditation for specific programs: American Bar Association, American Chemical Society, American Dietetics Association, Association of American Law Schools, Engineers' Council for Professional Development, National Architectural Accrediting Board, National Association of Schools of Music, National Council for Accreditation of Teacher Education, and Society of American Foresters.

In addition, the university has long possessed nationally recognized marks of excellence, including chapters of the following general honorary societies: Phi Beta Kappa (since 1926), Phi Kappa Phi (since 1960), Sigma Xi (since 1922), and chapters of national honorary and scholarship societies in practically every specialized field. The university also holds membership in the American Association of University Women.

The Library

The University Library and Law Library contain a collection of about 845,000 volumes, to which approximately 30,000 volumes are added annually. The library receives more than 9,500 periodicals and 125 newspapers and, as the regional depository in Idaho for U.S. government documents, houses a collection of over 290,000 official publications. The U.S. Geological Survey and the Army Map Service also use the library as a depository; there are now about 55,000 maps in the library's collection.

Subject librarians administer three open-stack divisional libraries (humanities, social science, and science/technology) which have been organized to conform with the academic divisions of the university. The library shares the university objectives of teaching, research, and service, and offers individual and group instruction in elementary and advanced techniques of bibliographic research.

The Special Collections Room contains rare and curious books, and books that constitute a unique assemblage, such as the Day-Northwest Collection which consists of more than 3,000 volumes on Idaho and the Pacific Northwest.

The library also maintains a Browsing Room comprised of books of current interest, popular periodicals, and state, out-of-state, and foreign newspapers.

The library is air-conditioned, is open eighty-six hours a week during the regular school term, and provides coin-operated electric typewriters and photocopy machines at a nominal fee.

As a member of the Pacific Northwest Bibliographic Center located in Seattle, the library has access to the collections of other academic libraries within the region.

The Museum

The University Museum, located in the Faculty Office Complex, exists to serve the campus, region, and state. An all-university service, its role is to teach through the use of objects and to provide a workshop facility for students in museology who are preparing for a museum career. (Museology is one of the disciplines within the Department of Sociology/Anthropology. See part 5 of this catalog for the courses offered.)

The permanent collections include at this time objects from Africa, the Near East, and southeast Asia. Students, employees, and other friends of the university can help to build the museum's collections of scientific and artistic objects by calling the museum director's attention to significant, available material.

Degrees Granted

UPON COMPLETION of appropriate programs of study and recommendation of the university faculty and president, the degrees listed below are granted by the Regents of the University. In addition, a lower-division Certificate of General Proficiency is granted to students who complete the appropriate educational program at the Idaho National Engineering Laboratory, Idaho Falls.

Baccalaureate Degrees

Bachelor of Architecture, B.Arch.
Bachelor of Arts, B.A.
Bachelor of Dance, B.Dan.
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 Physics, B.Phys.
Bachelor of Science, B.S.
Bachelor of Science in Agricultural Economics, Agricultural Education, Agricultural Engineering, Agricultural Mechanization, Animal Industries, Bacteriology, Business, Business Education, Chemical Engineering, Civil Engineering, Education, Electrical Engineering, Entomology, Fisheries Resources, Forest Resources, General Agriculture, Geography, Geological Engineering, Geology, Home Economics, Mechanical Engineering, Metallurgical Engineering, Mining Engineering, Plant Protection, Plant Science, Pre-Dental Studies, Pre-Medical Studies, Range Resources, Recreation, Soil Science, Veterinary Science, Wildland Recreation Management, Wildlife Resources, Wood Utilization, B.S.*
Bachelor of Technology, B.Tech.

*The subject signature is added to the abbreviation in each instance.

Master's Degrees

Master of Architecture, M.Arch.
Master of Arts, M.A.
Master of Arts in Teaching, M.A.T.
Master of Business Administration, M.B.A.
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 Science, M.Nat.Sc.
Master of Nuclear Science, M.Nuc.Sc. (Limited to students enrolled in the educational program of the Idaho National Engineering Laboratory, Idaho Falls.)
Master of Public Administration, M.P.A.
Master of Science, M.S.

Specialist Degrees

Specialist in Education—Ed.Sp.
Specialist in Educational Administration—Ed.Admin.Sp.
Specialist in Guidance and Counseling—Guid.-Couns.Sp.
Specialist in School Psychology—Sch.Psych.Sp.
Specialist in Special Education—Sp.Ed.Sp.
Specialist in Vocational Education—Voc.Ed.Sp.

Doctoral Degrees

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

Programs Offered

UNDERGRADUATE AND GRADUATE programs offered by the university are shown in the list below. Entries followed by degree abbreviations are major programs leading to the degrees indicated. In parentheses after each major is the college or unit through which the program is offered. The abbreviations used are: (Ag) College of Agriculture, (B&E) College of Business and Economics, (Ed) College of Education, (Engr) College of Engineering, (FWR) College of Forestry, Wildlife and Range Sciences, (GS) General Studies Program, (Law) College of Law, (L&S) College of Letters and Science, (Min) College of Mines. All graduate degrees, except the degree of Juris Doctor, are offered through the Graduate School. See the notes at the end of this list.

Accounting (B&E) B.S.Bus.
Agribusiness (Ag) B.S.Ag.Econ., B.S.An.Ind., B.S.Soil 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., M.S., M.Engr., Ph.D.
Agricultural Mechanization (Ag) B.S.Ag.Mech.
Agriculture: General (Ag) B.S.Gen.Ag.
Air Force Officer Education Program*
American Studies (L&S) B.A.
Animal Sciences (Ag) B.S.An.Ind., M.S.
Anthropology (L&S) B.A., B.S., M.A.
Architecture (L&S) B.Arch., M.Arch., M.A.
Army Officer Education Program
Art (L&S) B.A., B.F.A., M.A., M.F.A., M.A.T.
Bacteriology (Ag) B.S.Bact., M.S., Ph.D.; also (L&S) B.S.
Bacteriology: Medical Technology (L&S) B.S.
Biochemistry (Ag) M.S., Ph.D.
Biological Sciences (L&S) M.Nat.Sc.
Biology (L&S) B.A., B.S., M.A.T.
Botany (L&S) B.A., B.S., M.S., Ph.D.
Business: General (B&E) B.S.Bus., M.B.A.
Business and Applied Science (B&E) B.S.Bus.
Business Education (Ed) B.S.Bus.Ed., M.S., M.Ed.
Chemical Engineering (Engr) B.S.Ch.E., M.S., M.Engr., Ph.D.
Chemistry (L&S) M.S., M.Nuc.Sc.**, 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 Development (L&S) B.A., B.S.H.Ec.
Civil Engineering (Engr) B.S.C.E., M.S., M.Engr., Ph.D.
Classical Studies (L&S) B.A.
Clothing, Textiles and Design (L&S) B.S.H.Ec.
Communication (L&S) B.A., B.S.
Computer Science** (Engr) M.S.
Crop Management (Ag) B.S.Pl.Sc.
Dance (Ed) B.Dan.
Distributive Education (Ed) B.S.Bus.Ed.
Earth Science (Min) M.Nat.Sc., M.A.T.
Economics (B&E) B.S.Bus., M.S.; also (L&S) B.A., B.S.
Education (Ed) M.A.T., Ed.Sp., Ed.D.,Ph.D.
Educational Administration (Ed) M.S., M.Ed., Ed.Admin.Sp.
Electrical Engineering (Engr) B.S.E.E., M.S., M.Engr., Ph.D.
Elementary Education (Ed) B.S.Ed., M.S., M.Ed.
English (L&S) B.A., M.A., M.A.T.
Entomology (Ag) B.S.Ent., M.S., Ph.D.
Finance (B&E) B.S.Bus.
Fisheries Resources (FWR) B.S.Fish.Res., M.S.
Food and Nutrition (L&S) B.S.H.Ec.
Forest Resources (FWR) B.S.For.Res., M.S.
Forestry, Wildlife and Range Sciences (FWR) Ph.D.
French (L&S) B.A., M.A., M.A.T.
General Studies (GS) B.G.S.
Geography (Min) B.S.Geog., M.S., M.A.T.; 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.
German (L&S) B.A., M.A., M.A.T.
Guidance and Counseling (Ed), M.S., M.Ed., Guid.-Couns.Sp.
History (L&S) B.A., B.S., M.A., M.A.T., Ph.D.
Home Economics (L&S) B.S.H.Ec., M.S., M.A.T.
Home Economics Education (L&S) B.S.H.Ec.
Hydrology (Min) M.S.
Industrial Education (Ed) B.S.Ed., M.S., M.Ed.
Interdisciplinary Studies (L&S) B.A., B.S., M.A., M.S.
Interior Design (L&S) B.F.A., M.A.
Journalism (L&S) B.A., B.S.
Landscape Architecture (L&S) B.L.Arch.
Landscape Horticulture (Ag) B.S.Pl.Sc.
Latin (L&S) B.A.
Latin American Studies (L&S) B.A.
Law (Law) J.D.
Law: Combined Program (L&S) B.A., B.S.
Management (B&E) B.S.Bus.
Marketing (B&E) B.S.Bus.
Marketing: Real Estate (B&E) B.S.Bus.
Mathematics (L&S) B.A., B.S., M.S., M.Nuc.Sc.**, M.Nat.Sc., M.A.T., Ph.D.
Mathematics: Applied (L&S) B.S.
Mechanical Engineering (Engr) B.S.M.E., M.S., M.Engr., Ph.D.
Metallurgical Engineering (Min) B.S.Met.E., M.S.
Metallurgy** (Min) M.S., M.Nuc.Sc.
Mining Engineering (Min) B.S.Min.E., M.S.
Mining Engineering-Metallurgy (Min) Ph.D.
Museology (L&S) B.A., B.S.
Music (L&S) M.A., M.Mus., M.A.T.
Music: Applied (L&S) B.A.
Music: Composition (L&S) B.Mus.
Music: History and Literature (L&S) B.A.
Music: Instrumental Performance (L&S) B.Mus.

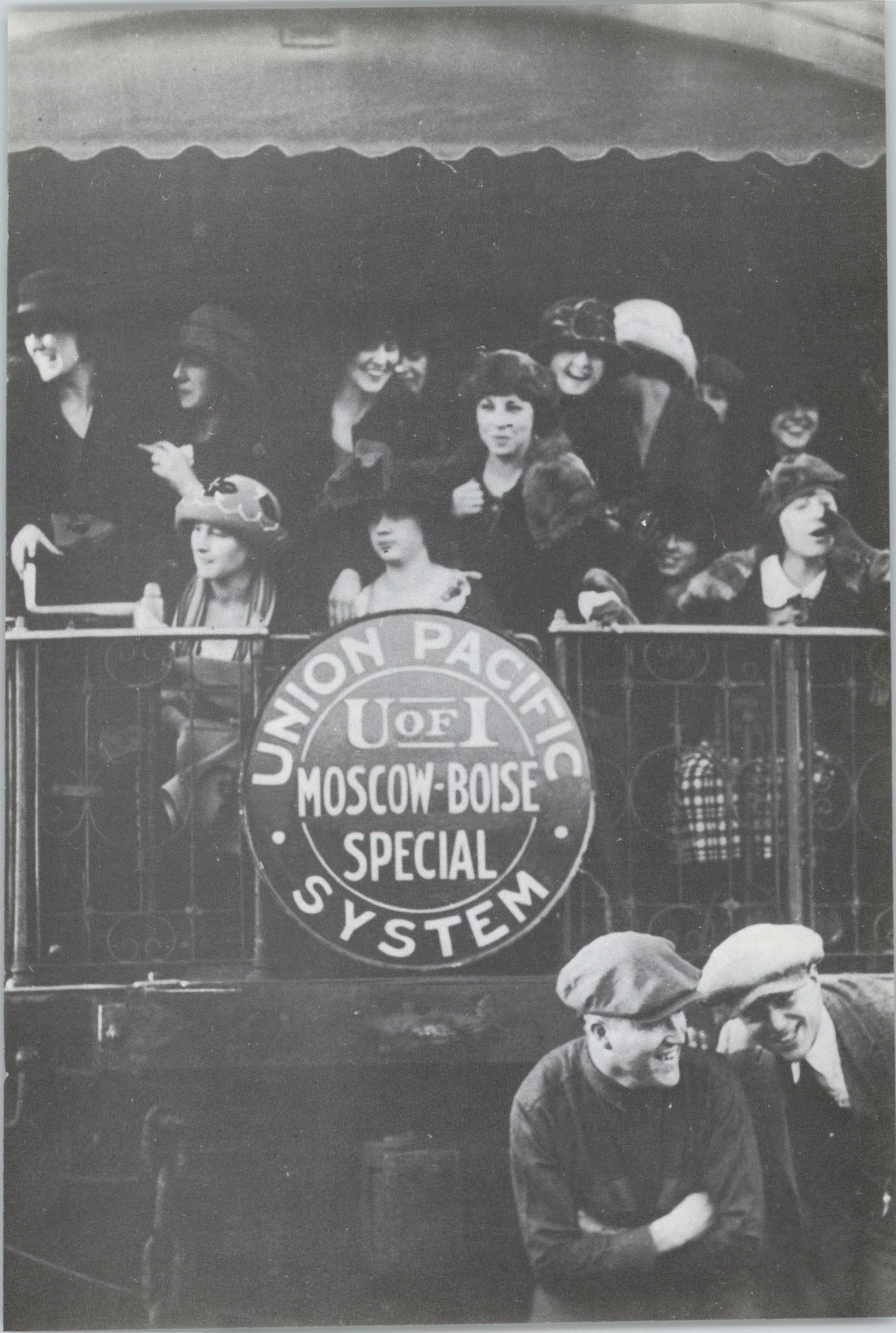
Music: Theory (L&S) B.A.
Music: Vocal Performance (L&S) B.Mus.
Music Education: Instrumental (L&S) B.Mus.
Music Education: Vocal (L&S) B.Mus.
Music Education: Vocal-Instrumental (L&S) B.Mus.
Natural Resources Development (Ag) B.S.Ag.Econ.
Naval Science (L&S) B.N.S.; also Navy-Marine Officer Education Program
Nuclear Engineering** (Engr) M.S., M.Engr.
Office Administration (B&E) B.S.Bus.
Office Occupations Education (Ed) B.S.Bus.Ed.
Philosophy (L&S) B.A., B.S., M.A.
Physical Education (Ed) M.S., M.Ed.
Physical Education: Elementary (Ed) B.S.Ed.
Physical Education: Men (Ed) B.S.Ed.
Physical Education: Women (Ed) B.S.Ed.
Physical Sciences (L&S) M.Nat.Sc.
Physics (L&S) B.A., B.S., B.Phys., M.S., M.Nuc.Sc.**, M.A.T., Ph.D.
Plant Protection (Ag) B.S.Pl.Prot.
Plant Science (Ag) B.S.Pl.Sc., M.S., Ph.D.
Political Science (L&S) B.A., B.S., M.A., M.A.T., Ph.D.
Pre-Dental Studies (L&S) B.S.Pre-Dent.
Pre-Medical Studies (L&S) B.S.Pre-Med.
Pre-Nursing (L&S) 1-year and 2-year programs
Pre-Physical Therapy (L&S) B.S.
Psychology (L&S) B.A., B.S., M.S.
Public Administration (L&S) M.P.A.
Radiological Science** (L&S) M.S.
Radio-Television (L&S) B.A., B.S.
Range-Livestock Management (Ag) B.S.An.Ind.
Range Resources (FWR) B.S.Range Res., M.S.
Recreation (Ed) B.S.Rec.
Rural and Community Development (Ag) B.S.Ag.Econ.
School Psychology (Ed) Sch.Psych.Sp.
Secondary Education (Ed) B.S.Ed., M.S., M.Ed.
Social Sciences (L&S) M.A.T.
Sociology (L&S) B.A., B.S., M.A.
Sociology-Anthropology (L&S) M.A.T.
Soil Science (Ag) B.S.Soil Sc., M.S., Ph.D.
Spanish (L&S) B.A., M.A., M.A.T.
Special Education (Ed) B.S.Ed., M.S., M.Ed., Sp.Ed.Sp.
Speech (L&S) B.A., B.S.
Technical Education (Ed) B.S.Ed.
Theatre Arts (L&S) B.A., B.S., B.F.A., M.A.
Theatre Arts-Speech (L&S) M.A.T.
Trade and Industrial Education (Ed) B.S.Ed.
Veterinary Science (Ag) B.S.Vet.Sc., M.S.
Vocational Education (Ed) M.S., M.Ed., Voc.Ed.Sp.
Vocational-Technical Education (Ed) B.S.Ed.
Wildland Recreation Management (FWR) B.S.Wildland Rec.Mgmt., M.S.
Wildlife Resources (FWR) B.S.Wildl.Res., M.S.
Wood Utilization (FWR) B.S.Wood Util., M.S.
Zoology (L&S) B.A., B.S., M.S., Ph.D.

---

*A cooperative program in aerospace studies is being developed with Washington State University.

**The graduate majors in computer science, metallurgy, nuclear engineering, and radiological science, as well as the degree of Master of Nuclear Science, are limited to students enrolled in the educational program of the Idaho National Engineering Laboratory, Idaho Falls.

Facing page: The "student special" from Moscow to Boise in 1922.


UNION PACIFIC
U OF I
MOSCOW-BOISE
SPECIAL
SYSTEM

Admission to the University

STUDENTS DESIRING TO ENTER the university for the first time should write to the Admissions Office and request an admissions folder. It contains detailed instructions on the application procedure and provides a means of requesting information on housing and various types of financial aids.

Students who have not earned a college degree are classified as undergraduates. This catalog section contains general information pertinent to all applicants for admission to the university. See "Admission to the Graduate School and the College of Law" near the end of this catalog section for additional information.

Undergraduate students are classified as freshmen (less than twenty-six credits), sophomores (less than sixty credits), juniors (less than ninety-four credits), or seniors.

Applicants who are still in high school should apply during the first semester of their senior year and should request the school to send a record of their first seven semesters to the Admissions Office. If otherwise qualified, the applicant will be given an early notice of tentative acceptance for fall entrance based on this record. Final acceptance will be granted when the applicant has graduated from an accredited high school.

Admission Procedures

Credentials. Applicants for admission are required to submit the following:

1. Personal data on the regular application-for-admission blank. Failure to list all institutions attended as specified on the application form is considered fraud and subjects the applicant to immediate cancellation of his or her registration.

2. A certificate of secondary-school record from the last high school attended and a transcript and statement of honorable dismissal from each institution attended beyond high school. TRANSCRIPTS SUBMITTED IN SUPPORT OF AN APPLICATION MUST BE OFFICIAL AND MUST BE SENT DIRECTLY TO THE ADMISSIONS OFFICE BY THE ISSUING INSTITUTION (or certifying agency in the case of international students). THEY WILL NOT BE ACCEPTED FROM THE APPLICANT. THEY BECOME THE PROPERTY OF THE UNIVERSITY AND CANNOT BE RETURNED OR FORWARDED. To be official, a transcript must be signed by the registrar, superintendent, principal, or other authorized official of the school.

3. Each applicant for admission to the freshman class (including transfer students with less than twenty-six semester credits) is required to have the scores attained on either the College Entrance Examination Board tests (SAT) or the American College Testing Program (ACT) sent to the Admissions Office prior to registration to become a part of his or her file.

4. Each student entering the university for the first time, except those enrolling for summer session only, is required to file with the university a complete physical examination report before registration is initiated. The physical examination should be performed by the applicant's physician before coming to the university; special forms are provided for this purpose. University physicians do not make entrance physical examinations. The university may require other or further physical examinations if deemed necessary.

5. All new nonresident undergraduate applicants, except those applying for summer sessions, must remit a fee of $25.00 for review of credentials and other services in connection with the application process. This fee is not refundable after the application has been submitted to the Admissions Office, except as follows:

a. If the applicant is not accepted for admission to the university, $20.00 of this fee will be refunded. It is recognized that this decision cannot be final until all supporting credentials are on file.

b. If the applicant is accepted by the university, the $25.00 will be applied as partial payment of registration fees for the semester for which the individual applied. If the applicant, once accepted, does not enroll at the university for the particular semester applied for, there will be no refund and no credit toward fees.

Final Dates for Application. In order to provide time for evaluation and for notice of acceptance to reach the applicant before registration days, applications and credentials should be received by the Admissions Office by August 1 for first-semester entrance and by December 15 for second-semester entrance. Applications and credentials for summer sessions should be received by the Admissions Office at least three weeks prior to the opening date of the summer sessions 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 may be accommodated. Acceptance will be subject to space limitations in the division in which the applicant wishes to register.

Acceptance.

1. When an applicant's credentials have all been received and he or she has been found eligible, a letter of acceptance and a physical examination report form will be sent. A permit to register will be among the registration materials

Facing page: Chemistry laboratory, circa 1907.

furnished the applicant upon arrival at the university.

2. 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 submit a supplemental application if entrance at a later time is desired.

Admission Requirements

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

Applicants Without Previous College Credit.

1. Applicants who are either residents of Idaho or sons or daughters of nonresident alumni of the university are eligible for admission if they are graduates of accredited high schools.

2. Nonresident applicants who are graduates of accredited high schools are selected for admission from among those who rank scholastically in the upper half of their graduating class.

3. Applicants who are not graduates of accredited high schools may qualify for admission in one of the following ways:

a. **By Recommendation.** Applicants who have completed fifteen acceptable units in accredited high schools and who rank scholastically in the upper half of their class, but have not graduated, may be admitted upon special written recommendation of the principal and approval of the director of admissions.

b. **By Examination.** Applicants who are graduates of nonaccredited high schools and those who are not graduates of any high school will be considered for admission on the basis of individual evaluation of their capability to benefit from a university education. In addition to their previous academic records and scores on specified standardized tests, special consideration will be given to evidence of maturity as indicated by their age and record of experience in the armed forces or in employment. Applicants to whom this provision applies should write to the Admissions Office for detailed information and instructions.

4. **High School Preparation.** TRANSCRIPTS SUBMITTED IN SUPPORT OF AN APPLICATION MUST BE OFFICIAL AND MUST BE SENT DIRECTLY TO THE ADMISSIONS OFFICE BY THE ISSUING INSTITUTION (or certifying agency in the case of international students). THEY WILL NOT BE ACCEPTED FROM THE APPLICANT. THEY BECOME THE PROPERTY OF THE UNIVERSITY AND CANNOT BE RETURNED OR FORWARDED. Certificates of secondary-school record should show the length of each course in weeks, the number of class meetings per week, the length of each meeting, and the grade of scholarship attained, including a record of all failures, conditions, and repeats.

a. **Definition of High School Units.** A "unit" represents a subject taught five times per week in periods of not less than forty minutes duration (eighty minutes for laboratory periods) for a school year of at least thirty-six weeks. Units earned in the ninth grade of a junior high school are combined with those earned in a three-year senior high school. Units are classified as "academic" and "nonacademic." Academic units are those earned in English (composition and literature), foreign languages, mathematics, natural sciences, and social sciences. Acceptance of units is subject to the following limitations:

(1) Units are not accepted in spelling, penmanship, reviews, project work (unless in conjunction with regular courses), and work primarily in the nature of extracurricular activities.

(2) Units are not accepted for less than one year in a foreign language, typewriting, shorthand, or bookkeeping.

(3) Less than one-half unit in any subject is not accepted.

(4) A maximum of one unit each in physical education and military training is accepted.

b. **Subject Requirements.**

(1) The subject-matter content of an applicant's secondary education does not enter directly into the determination of eligibility for admission. It does, however, provide a basis for evaluating the adequacy of his or her preparation, for advising as to the choice of college or curriculum, and for placement in certain college subjects. The required preparation for admission to the various colleges of the university is set forth in the table on the following page.

(2) Students may be admitted with fewer academic units than the minimum total indicated for their particular college or they may be admitted with the total academic units required but with fewer units in one or more subjects than indicated. 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.

HIGH SCHOOL UNITS IN	COLLEGES OF THE UNIVERSITY Students who plan to enter the General Studies Program (see part 4 of this catalog) should use this chart as a guide for minimum high school preparation.						
	Agriculture	Business & Economics	Education	Engineering	Forestry, Wildlife & Range Sciences	Letters & Science	Mines
English	3	3	3	3	3	3	3
Social science	2	2	2	2	2	2	2
Mathematics (1)							
Algebra	1	1	1	1	1	1	1
Plane geometry	1	1		1	1	1(2)	1
Advanced algebra	½			1	1		½
Trigonometry				½	½		
Other			1	½			½(3)
Natural science							
Unspecified	2	2	2	1	0	2	1(4)
Biology					1		
Chemistry				1	1		
Physics				1	1		1(5)
Unspecified academic units	1½	2	2		½	2	1
Total academic units	11	11	11	12	12	11	11
Additional academic, vocational, or elective units	4	4	4	3	3	4	4
Total units required	15	15	15	15	15	15	15

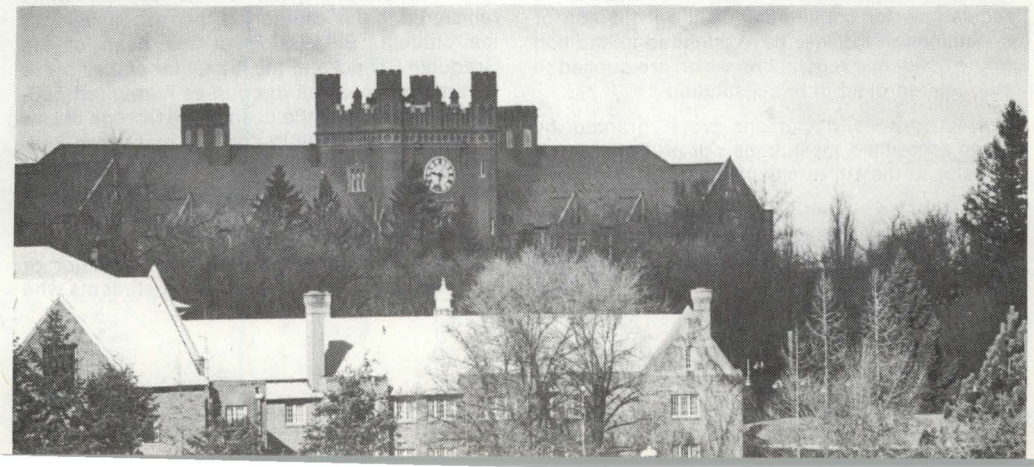
1 High schools offering modern mathematics programs may have course names that differ from the traditional ones, yet contain equivalent material.

2 Or one unit of advanced algebra. Both plane geometry and advanced algebra are recommended, especially for prospective students of mathematics, science, or architecture.

3 One-half unit of either advanced algebra, trigonometry, or solid geometry (in this order of preference) is required.

4 Chemistry strongly recommended.

5 One unit required for mining, metallurgical, or geological engineering, but not required for geography where two units of natural science (unspecified) are required.



Advanced Placement. Credit is granted for successful completion of the CEEB Advanced Placement Examination, the College Level Examination Program (CLEP), and courses at military schools as recommended by the American Council on Education. Students who expect to take the CLEP exams, or want their CLEP credits evaluated, should write to the registrar for a set of guidelines to avoid duplication of credit. Inquiries about other advanced placement should be addressed to the Admissions Office.

Applicants With Previous College Credit.

1. Applicants who have been enrolled in other colleges or universities accredited by one of the regional agencies, such as the Northwest Association of Secondary and Higher Schools, and whose scholastic records at these institutions are satisfactory may be admitted to advanced standing. These students must submit the following credentials to the Admissions Office of the University of Idaho at least one month before they expect to enter the university: a certificate of secondary school record from the last high school attended and separate transcripts from each of the higher institutions attended. TRANSCRIPTS SUBMITTED IN SUPPORT OF AN APPLICATION MUST BE OFFICIAL AND MUST BE SENT DIRECTLY TO THE ADMISSIONS OFFICE BY THE ISSUING INSTITUTIONS (or certifying agency in the case of international students). THEY WILL NOT BE ACCEPTED FROM THE APPLICANT. THEY BECOME THE PROPERTY OF THE UNIVERSITY AND CANNOT BE RETURNED OR FORWARDED.

2. Upon admission of a transfer student, all credits earned or attempted, and all grades received in college-level courses at accredited institutions are recorded; however, no grade points for this work are included in the computation of his or her grade point average at the University of Idaho. (For regulations covering students who entered the university prior to the 1971-72 academic year, see the applicable catalog issue.)

3. Students admitted to the University of Idaho from other collegiate educational institutions must have complied with the academic regulations for continuance in the institution or institutions which they have attended in addition to the academic regulations which are applied to students enrolled in this institution.

4. Advanced placement credit granted by other accredited institutions will be honored on transfer to the University of Idaho.

5. Transfer students are selected from those applicants who present a cumulative grade point average of at least 2.00 (C) for all college-level study attempted in all accredited colleges attended, exclusive of courses for which grade points are not allowed.

6. Advanced-standing applicants with less than twenty-six semester hours of transfer credit must meet both beginning freshman and advanced-standing admission requirements, including submission of the required test scores.

7. 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.

8. A maximum of sixty-four credits earned at junior or community colleges, or one-half of the total credits required for the student's intended baccalaureate degree program, may be transferred to the University of Idaho, except as limited by general academic regulation "J-5-a" (see part 3 of this catalog).

Admission as a Nonmatriculated Student. This category is for applicants who wish to pursue studies for their personal edification and who do not want to work toward a formal degree at the University of Idaho. A transcript from the last accredited institution and additional documentation may be required in support of the application. If applying for financial aid, the applicant must request transcripts from all institutions attended above the eighth grade, if an undergraduate; or from the institution from which the degree was earned, if a degree is held. Transcripts must be received by the Admissions Office directly from the issuing institutions.

If the student wishes to change to a degree program, he or she will be required to file a regular application for admission and meet regular admission requirements. The department in which the student plans to major will determine the amount of credit earned while a nonmatriculated student that will be counted toward the degree. Degree requirements will be as listed in the catalog in effect at the time of enrollment in the University of Idaho as a degree-seeking student.

The applicability of credit earned while registered in this category is the responsibility of the student. Permission of the dean of the Graduate School and the instructor of the course is required to enroll in courses numbered 500-600. Permission of the dean of the College of Law is required to enroll in courses numbered 800-999. All students in the nonmatriculated category who register for a full course load (i.e., twelve or more credits in any semester or six or more credits in a summer session) will be disqualified if a 2.00 is not earned during that semester or summer session. Nonmatriculated students who

are disqualified are ineligible to continue in the university unless readmitted.

Nonmatriculated students who are otherwise eligible for financial aid may be assisted for a maximum of two semesters while enrolled in this category. If a departure from this regulation is warranted, the student has the right to appeal to the Student Financial Aids Committee. The two-semester limitation shall include periods at other institutions in which the student was enrolled in a nonmatriculated or similar category.

A nonmatriculated student who has registered for two semesters pursuing a load of twelve credits or more is required to petition the Admissions Committee if he or she wishes to continue as a nonmatriculated student pursuing a load of twelve credits or more. Such a student will be required to file the same credentials required of a regular student.

A nonmatriculated applicant must complete a special application form indicating an understanding of the limitations of this category.

Registration as a nonmatriculated student does not meet the Immigration Service requirements for the issuance of a visa.

Admission of International Students. The University of Idaho accepts qualified students from other countries to the extent that space is available. International applicants are expected to meet the requirements for admission from high school or from other colleges or universities as outlined above.

1. **Credentials.** Official transcripts and/or certified copies of the certificate, diploma, or government examination report received from any college or university must be translated into English and must be sent by the certifying agency directly to the Admissions Office.

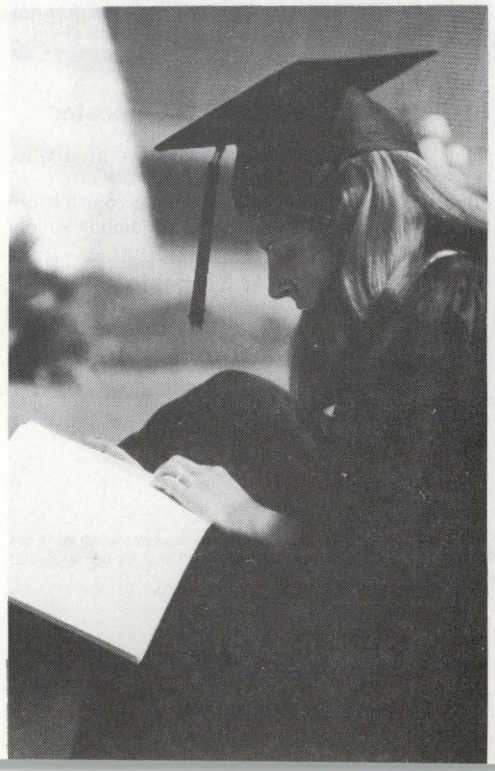
2. **English Proficiency.** All international student applicants whose native language is other than English are required to take and receive a satisfactory score on the Test of English as a Foreign Language (TOEFL) or other examination acceptable to the University of Idaho. Arrangements to take the TOEFL examination may be made by writing directly to TOEFL, Educational Testing Service, P.O. Box 899, Princeton, New Jersey 08540. The test must be taken and the scores received by the university prior to a decision on admission of the applicant.

3. **Financial Statement.** All international students must present to the 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.

Admission to the Graduate School and the College of Law. Students interested in graduate study should request a copy of the catalog of the Graduate School. The special procedures for admission to the College of Law are described in that division's section in part 4 of this catalog. See "Fees and Expenses" in this part 2 for the application fee for the Graduate School and the College of Law.

Mutual Responsibility Agreement

THE ACCEPTANCE OF A STUDENT for admission and enrollment at the University of Idaho constitutes an agreement of mutual responsibility. The student's part of this agreement is to accept established university rules and policies, to respect the laws of governmental units, and to act in a responsible manner appropriate to these laws, rules, and policies. The university's part is to recognize its commitment to higher education, to fulfill its responsibilities pursuant to the attainment of the academic goals and objectives of all members of the university community, and to meet its obligations for an appropriate atmosphere which will provide an opportunity for students to be heard in matters pertaining to their welfare as students. Appropriate disciplinary action on the part of the university must be taken when it has been determined by established procedures that a student has acted contrary to university regulations and thus has violated this agreement.



Fees and Expenses

EXPENSES FOR ATTENDING the University of Idaho vary with the taste and financial means of the individual. The university prides itself for its record in providing high-quality instruction at reasonable cost. Rates quoted herein are subject to change without notice.

Board and room are available at relatively low rates because more than two-thirds of the single undergraduate students live on campus. Single- and double-occupancy rooms are available (the following room rates apply to double-occupancy rooms). For about $482.50-$597.50 per semester ($167.50-$207.50 for room; $315.00-$390.00 for board), students secure excellent board and room in the university-operated dormitories. Students may reduce their living costs by sharing the work in the cooperative residence halls; costs there are approximately $460.00 per semester ($140.00 for room; $320.00 for board).

Annual Expenses

In forecasting total costs for the academic year, double the semester estimates above and add miscellaneous costs—clothing, laundry, transportation, incidentals, social and recreational expenditures, fraternal affiliations, and personal needs. These miscellaneous costs will vary widely with individual tastes.

An undergraduate student coming to the university needs about $550.00 to meet initial payments, including the first installment on the board payment. Out-of-state students need an additional $600.00 to cover tuition. Personal checks, bank drafts, money orders, or travelers checks are all accepted by the university.

Regular Student Fees Per Semester

All students, unless specifically exempted, who register for more than seven credits (or equivalent) pay the full-time student registration fees applicable to the particular division in which the student enrolls. Students in all divisions other than the College of Law pay $215.00 per semester. Law students pay $300.00 per semester unless the student was in continuous enrollment in the College of Law prior to the 1972-73 academic year, in which case the fees are $215.00 per semester. Fees are payable in full at the time of registration on the scheduled registration days.

Payment of full-time fees include most laboratory and course charges, membership in the Associated Students of the University of Idaho (ASUI), and entitles the student to a non-transferable student identification card and to the services of the Office of Alumni Relations, as well as the other services and facilities maintained by the university for the benefit of the students, subject to additional 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 desire to use any part of these services.

Special Fees

Nonresident Tuition ($600.00 per semester). Students who are classified as nonresidents of the state of Idaho pay this special fee in addition to the registration fees of $215.00, making a total of $815.00 per semester. For tuition purposes, a student may be considered classified as a resident of Idaho by meeting one or more of the following qualifications:

1. Any student under the legal voting age whose parent or court-appointed guardian is domiciled in the state of Idaho. Domicile is deemed to exist when the parent or guardian has established residence in Idaho for an indefinite time and has abandoned any former residence. To qualify under this section, the parent or guardian must be residing in the state on the opening day of the term for which the student matriculates.

2. Any student, legal voting age or older, who has continuously resided in Idaho for twelve

Estimated Costs Per Semester

	Idaho Residents	Nonresidents
Tuition*	**0**	**$ 600.00**
Registration fees**	**215.00**	**215.00**
Books, supplies, etc	**70.00 to 90.00**	**70.00 to 90.00**
Room and board***	**460.00 to 597.50**	**460.00 to 597.50**
Total******	**$745.00 to 902.50**	**$1345.00 to 1502.50**

*WAMI students pay $145.00 tuition. Students enrolled in the Graduate School pay $50.00 tuition, additional for nonresidents.

**Law students pay an additional $100.00.

***In university-owned dormitories. The lower figure represents the costs in cooperative dormitories in which residents provide their own janitorial and dining hall services.

****Not including personal, incidental, or travel expenses.

months next preceding the opening day of the term in which he or she proposes to enroll in the university.

3. Any student, under the legal voting age, who is a graduate of an accredited secondary school in the state of Idaho, and who matriculates in the University of Idaho during the term immediately following such graduation, regardless of the residence status of the parents 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 purpose of attending a college or university.

5. A member of the armed forces of the United States who is stationed in Idaho for other than educational purposes.

6. A student, under the legal voting age, whose parent or guardian is a member of the armed forces and stationed in Idaho on military orders. The student, while in continuous attendance, shall not lose residence status when the parent or guardian is transferred from the state on military orders.

7. A person, under the legal voting age, married, and who together with spouse has continuously resided in Idaho for twelve months next preceding the opening date of the period of instruction during which he or she proposes to attend the university.

8. A person, separated under honorable conditions from the armed forces of the United States 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 his or her home of record in service and enters the university within one year of the date of separation. (A copy of the DD214 separation papers may be submitted in support of this qualification.)

Application Fee for Nonresident Undergraduates ($25.00). This fee applies to out-of-state undergraduate applicants, except those applying for summer sessions. If the applicant is not accepted for admission to the university, $20.00 will be refunded. If the applicant is accepted for admission, the entire amount will be applied in partial payment of the nonresident tuition for the semester for which the student has applied for admission. If the student is accepted for admission for a particular semester, but does not complete the matriculation in the university during that semester, no credit or refund will be available.

Application Fee for the Graduate School and College of Law ($10.00). This fee is non refundable; however, the $10.00 will be applied toward the payment of student fees for the semester or summer session for which the applicant is accepted.

Graduate Tuition ($50.00 per semester). Students who enroll in the Graduate School pay this fee in addition to the registration fees of $215.00 and, if applicable, in addition to nonresident tuition ($600.00).

WAMI Tuition ($145.00 per semester). Students at the University of Idaho who enroll in the WAMI medical education program pay this fee in addition to the registration fees of $215.00 and fees paid to the University of Washington.

Registration Fee for Senior Scholars ($5.00). Persons sixty years of age and older are permitted to enroll in courses on the Moscow campus, on a space-available basis, for a total of $5.00 per semester or other academic session without regard to the number of credits taken or audited. Senior scholars are enrolled after the regular registration days. Special fees for specific courses, e.g., music lessons, etc., are assessed, if such charges are made to other students who take the courses concerned. Registration under this program entitles the student to instructional and library privileges only, and does not include insurance, student health services, ASUI membership, or free admission to athletic events.

Part-Time Fee ($20.00 per credit or equivalent for residents; $25.00 for nonresidents). Students who register for seven credits or less may pay this fee, plus any special fees applicable to specific courses, in lieu of regular fees and tuition. Part-time students are entitled to instructional and library privileges only.

Audit or Zero-Credit Fee ($20.00 per credit or equivalent for residents; $25.00 for nonresidents). Students who register as auditors or for zero-credit pay this fee, plus 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.

Late Registration Fee ($15.00). Students who register after the last day to add classes or change course sections pay this fee (see regulation "C" in part 3 of this catalog).

Student Health Service Fees. The special fees charged by the Student Health Service are listed in the section headed "Student Services" later in this part 2 of the catalog.

Music Special Fees. All students, including graduate-student appointees, enrolling in courses numbered MusA 100, 101, 201, 301, 407, 505, Individual Instruction, pay $25.00 per credit or equivalent. The individual-instruction fee is waived for students whose programs of studies specifically require these courses for graduation. In addition, each student presenting a formal recital performance in the School of Music Recital Hall is charged $20.00. If two or more per-

formers present a program together, the charge is $10.00 for each of the principal performers.

Special Departmental Fees. Various departments, including the Department of Art/Architecture, charge a general shop fee and/or special fees for certain courses. Consult department offices for the current schedule of special departmental fees.

Extramural Credit Fee ($20.00). Charged for each separate request or petition for extramural credit which 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 general academic regulation "D-4"); credit for technical competence under such catalog entries as VocEd 270, 370, 470, and 480; and credit for external study/experience and bypassed courses (see general academic regulation "I"). This fee is waived for graduate students who have their regular—but not special—fees waived on the basis that they hold appointments as instructional assistants or graduate assistants.

Diploma Fee ($10.00). This fee is payable at the time the student applies for each degree or certificate to be awarded by the university. An additional fee of $5.00 is charged when a special diploma insert must be made.

Thesis/Dissertation Binding Fee ($7.00). 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, etc.) pays this fee to have two copies of the document bound.

Publication and Microfilming Fee ($25.00). 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 ($1.00). Every individual who has established an academic record at the university (including extension and correspondence study) shall be furnished, upon request, one official copy of the academic record without charge. Additional copies, when requested, are $1.00 per copy.

Yearbook Fee ($5.00). Students wishing to order a copy of the "Gem of the Mountains" pay this special 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 small greens fee is charged for the use of the ASUI Golf Course.

Deferred Payment of Fees

Students who have no delinquent accounts with the university and who are assessed registration fees or tuition in excess of $100 are eligible to defer payment of part of the fees and tuition in accordance with the following regulations:

1. At least 40% of fees and tuition plus the service charge specified below must be paid at the time of registration.

2. Any special fees must be paid in full at the time of registration including deposits, special course fees, insurance, housing and board payments, fines, penalties, summer school fees, special workshop fees, correspondence study 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 $100	$5
over $100	$10
over $300	$15

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 by October 10 and November 10 for the fall semester and by February 10 and March 10 for the spring semester.

5. Any delinquent installments are assessed an additional $10 late charge, and the registration of the student concerned is subject to cancellation.

6. Any student aid received by a student for purposes of registration (scholarships, student loans, BEOG awards, etc.) is deducted from fees to be assessed, and 60% of the balance, if that balance is over $100, may be deferred.

7. The student signs a promissory note for the deferred balance, and an authorization for deferred payment is given the student for presentation to the cashier. The Controller's Office makes related determinations, has notes signed, and issues authorizations during registration at the location for disbursement of student aid checks.

8. In the event a student who owes deferred payments withdraws from school, the difference between the portion of charges which 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 fees (except that $11.00 of the registration fee is nonrefundable once registration is completed). This does not apply, however, to the Northwest Interinstitutional Council on Study Abroad (NICSA) program; once the overseas program has begun, no refunds are possible.

1. When withdrawal is accomplished during the scheduled registration days, and before the beginning of classes, fees (less $11.00) are refunded in total.

2. When withdrawal is completed after classes have begun but prior to the close of the second week of classes, seventy-five percent of the fee balance is refunded.

3. When withdrawal is completed after the close of the second week but prior to the close of the fourth week of classes, fifty percent of the fee balance is refunded.

4. When withdrawal is completed after the close of the fourth week of classes, no refund is given.

Refunds are based upon the date of the application for refund after completion of withdrawal and not from the date of last attendance of class, except in cases of illness.

Refund of Music Fees. The above schedule does not apply to applied music lessons. Special music fees for individual instruction in performance studies may, upon prompt application by the student withdrawing, be refunded according to the following schedule: during the first two weeks of a semester, five-sixths; during the third and fourth weeks, two-thirds; fifth and sixth weeks, one-half; seventh and eighth weeks, one-third; ninth and tenth weeks, one-sixth. Application for this refund should be made to the director of the School of Music who is responsible for the approval of the application.

Student Housing

THE UNIVERSITY OF IDAHO is a residential campus with more than two-thirds of the single undergraduate students living in residence halls, fraternities, and sororities. The university recognizes that a student's total education is influenced by the nature and quality of the living environment outside the classroom and encourages the development of an environment in the residence halls that will be conducive to broad intellectual growth and greater participation in the life of the academic community. Campus living groups benefit from guidance services provided by advisers associated with them.

In addition to the twenty-three residence halls and twenty-nine sororities and fraternities for single students, the university also provides a number of accommodations for married students and graduate students. Additional housing is available in Moscow and the surrounding area and information may be requested from the Moscow Chamber of Commerce, 106 East Third, Moscow, Idaho 83843, or the ASUI housing referral office, SUB, University of Idaho.

Appropriate regulations are established by the university to assure acceptable living arrangements for all students.

Residence Halls

The university operates twenty-three residence halls and provides meal services for the students who live in them. Two of the halls, Steel House (women) and Targhee Residence (men), are cooperatives where students contribute their share of the labor in the kitchen, dining room, and public areas to reduce living costs. Each residence hall has study and recreation areas, lounges, and complete laundry facilities; commercial linen service is also available. Personal items, such as sheets, pillowcases, bedding, towels, and other articles deemed convenient or necessary are NOT furnished by the university residence halls and should be provided by the student.

See the section headed "Fees and Expenses," above, for the approximate cost of living in residence halls. More detailed information concerning student housing may be obtained from the Residence Halls Office, Wallace Residence Center, University of Idaho, Moscow, Idaho 83843.

Sororities

Chapters of ten national sororities are represented on the University of Idaho campus. Each sorority chapter owns and operates its own house. These are: Alpha Chi Omega, Alpha Gamma Delta, Alpha Phi, Delta Delta Delta, Delta Gamma, Gamma Phi Beta, Kappa Alpha Theta, Kappa Kappa Gamma, Lambda Delta Sigma, and Pi Beta Phi. The average cost for living in a sorority ranges between $135.00 and $150.00 per month, which includes charges for room, board, and social fees. In addition there are special membership fees—pledge, initiation, and house corporation reserve fund—which are paid only once. Panhellenic Council coordinates intersorority relationships and formulates policies regarding rushing procedures.

Arrangements for Sorority Living. Membership in a sorority is by invitation only. Those women who are interested in sorority living should complete the appropriate section of the

application-for-admission blank, which indicates their interest in sorority living, or write a letter to Panhellenic Council, c/o Student Advisory Services. The selection of members in each sorority is made during participation in a program known as "rushing," which is held prior to the beginning of the fall semester. Registration for rushing *must be completed no later than August 10.*

Fraternities

Nineteen national fraternities maintain chapters and houses on the University of Idaho campus. Membership in a fraternity is by invitation from the members of the group concerned. The university does not make arrangements for membership.

The average cost for living in a fraternity ranges between $140.00 and $155.00 per month, which includes charges for room, board, and social fees.

The following chapters of national fraternities maintain houses on the University of Idaho campus: Alpha Kappa Lambda, Alpha Tau Omega, Beta Theta Pi, Delta Chi, Delta Sigma Phi, Delta Tau Delta, Farmhouse, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Tau, Pi Kappa Alpha, Sigma Alpha Epsilon, Sigma Chi, Sigma Gamma Chi, Sigma Nu, Tau Kappa Epsilon, and Theta Chi. 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.

Arrangements for Fraternity Living. Anyone interested in fraternity living should so indicate on the admissions application or write for information to: Interfraternity Council, Student Advisory Services, University of Idaho, Moscow, Idaho 83843. Individuals who indicate an interest in fraternity living will be contacted by the various fraternities during the spring and summer prior to their matriculation in the University of Idaho. Invitation for living in a fraternity will generally be extended by the fraternities during the summer prior to matriculation; however, if necessary, these arrangements can be made through the Interfraternity Council upon arrival on campus for the fall semester.

Family Housing

For married students with families, the university operates three housing projects and more are being developed. Apartments in these projects in 1975-76 rent for about $100-145 per month; there are one-bedroom, two-bedroom, and three-bedroom units available. Some units are not furnished. To apply for an apartment, write to the Family Housing Office. A $25.00 advance deposit is required. Day care facilities are available upon request on a first-come-first-served basis.

Student Services

Student Rights and Conduct

The "Statement of Student Rights" and "Student Code of Conduct" are published in the Time Schedule of Classes. All members of the university community are urged to familiarize themselves with these basic documents.

Academic Advising and Counseling

Academic advising is regarded by the university as an extension of the teaching function and, therefore, as an important responsibility of the faculty. 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 Planning and Placement 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. Both formal and informal assistance, from faculty advisers and specialists, is available once sought.

Student Advisory Services

The Office of Student Advisory Services has the responsibility to assist students with problems which arise in their nonacademic lives. The office deals with individual and group problems and serves as a communication link within the university structure. Special advisory services for the residence hall system, the fraternity/sorority system, off-campus dwellers, veterans, international students, and ethnic minority students are provided to work with the unique group involved. Close contact is maintained with student government. Referrals to other student-service agencies are arranged. Resident advisers in each residence hall are also provided. The New Student Orientation Program, Women's Center, Day Care Center, and National Student Exchange Program are also coordinated by this office.

Learning Resource Center

The Learning Resource Center offers academic assistance to all university students through a variety of services, from basic study skills courses to individual consultations. A staff of experienced specialists in reading, composition, learning, and study skills provides drop-in help for those who need to improve reading speed, comprehension, note-taking, or test-reviewing techniques. The center maintains a modest library of learning skills workbooks and reading pacers for the use of students. Included are programmed mathematics texts for those who wish to make up high school deficiencies in algebra or geometry. Self-administered diagnostic tests are available for students, who may evaluate their learning style and skills with the help of the staff. Study skills classes, which include the diagnostic tests, general study methods, and speed-reading practice, run in six-week sessions twice each semester. One evening class runs each session.

The center also provides tutorial services for lower-division courses. Tutors are trained to work with individuals or small groups of students having difficulty in any particular lower-division class. Students interested in becoming tutors will learn accountability techniques, informal diagnosis and evaluation, and will be briefed on study problems most often encountered. University credit and a small amount of pay are available for qualified tutors.

Study Abroad

The university maintains an informational office for all kinds of foreign study and travel by Idaho students and faculty. The study abroad adviser is also the university's representative in the NICSA consortium (Northwest Interinstitutional Council on Study Abroad) involving nine other colleges and universities in the Northwest in addition to the University of Idaho.

A University of Idaho student can get credit for foreign study and study-touring in the following ways:

1. NICSA resident study—he or she registers for certain courses in London, England, or Avignon, France, and gets Idaho credit directly.

2. Official University of Idaho study tours—credit is given under Ed 273 and 473, SocSc 185 and 385, and departmental "special topics" courses 204 and 404.

3. Directed study—the student plans his or her own educational experience abroad, and arranges 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. Directed study in social science—as above, but not limited in scope to the subject of one department or one major. Study-touring for the purpose of education in the wide framework of any, more than one, or all of the social sciences and the humanities is provided for. The student presents a proposal to the social science coordinator before the travel, not after the student's return to the campus.

5. Course challenge—certain courses may be challenged on the basis of knowledge gained abroad. See general academic regulation "D-4."

6. External study/experience—credit may be awarded a student for knowledge and/or competence gained in foreign travel. See general academic regulation "I-5."

7. Transfer credits—work in other accredited institutions of higher learning can be recognized by the transfer of credits to the University of Idaho. This work may be in the study abroad programs of other American schools or in foreign schools.

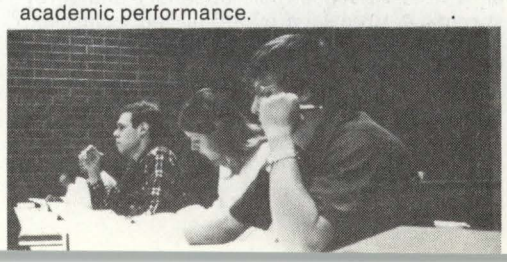
8. Petitions—a student who fails to receive satisfaction by any of the above procedures may present a petition to the Administrative Council's Petitions Subcommittee.

For more information regarding foreign study or travel, contact the Study Abroad Office located in the University Museum, Rm. 110, Faculty Office Complex West (telephone 885-6480).

Minority Student Programs

The Office of Minority Student Programs was established in 1974 to help minority and disadvantaged students adjust to life at the University of Idaho. This office facilitates application and matriculation procedures and offers academic, financial, and personal counseling to those students who might need it. The staff includes Black, Native American, and Chicano counselors who serve as liaisons between their respective groups and the university. Minority Student Programs conducts extensive recruiting of qualified minority students for the university and provides information on summer and permanent employment available to minority students in many fields.

All minority students are eligible for a full range of federal financial assistance as well as the opportunity to share in all university financial aid programs. In addition, several scholarships are available to minority students based on need and academic performance.



Counseling Center

The Student Counseling Center offers specialized counseling and testing services to students and spouses without charge. Professionally trained counseling psychologists are available to discuss educational and vocational plans, personal problems, concerns about study skills, and any other matters of concern related to the student's progress in college. The goal of counseling is to assist the student in evaluating his or her current situation and arriving at suitable conclusions based on the information at hand. Vocational/educational counseling necessitates an evaluation of the student's interests, abilities, and information about available opportunities. Evaluation of the information usually results in sound decisions. Personal problems, although more complicated, are resolved with a similar process.

The center maintains an up-to-date vocational library on over 250 occupations which students may use at any time during the normal operation of the center. The center also serves as the university representative for a variety of national testing programs including the Graduate Record, Law School Admissions, Admission Test for Graduate Study in Business, Miller Analogies, Dental Aptitude, and Medical Aptitude tests. Bulletins of information and application blanks are available here.

Student Health Service

The Student Health Service is comprised of a modern out-patient clinic with limited facilities for in-patient care and is equipped to take care of any ordinary illness or accident. It is open to students, both full-time and part-time, who pay the student health service fee. Service is also extended to students' spouses on a fee-for-service basis, as long as spouse care does not interfere with service to students who pay the regular health fee. Further, the university reserves the right to render treatment to others as deemed necessary by the Director of the Student Health Service.

A physical examination form will be mailed to all new students during the summer prior to their enrollment and must be filled out by their family physician, returned to the Student Health Service, and be on file prior to the new student's registration.

There are three full-time physicians who see patients in the clinic daily and for emergency care after hours and on weekends. Psychiatric consultation is available two days a week at the Student Health Service. Full laboratory and X-ray services are provided by a qualified technician. The hospital is staffed by registered nurses and provides round-the-clock service. Moderate charges are made for X-rays, lab tests, and certain medications. The charge for in-patient service is based on the meals that the patient requires. The Moscow area is served by a full panel of medical and surgical specialists who are consulted when indicated.

The out-patient clinic is open from 8:00 a.m. to 5:00 p.m. for routine and emergency care. Emergency care in the Student Health Service Emergency Room is available when the out-patient clinic is closed. Special-interest clinics are maintained, and it is strongly urged that all new students visit the Student Health Service to acquaint themselves with all services which are provided.

The Student Health Service is closed during holidays. No in-patient services are maintained during the summer, although the out-patient clinic maintains regular hours.

Health and Accident Insurance Coverage

An optional health and accident insurance plan is available to University of Idaho students and their spouses/children. This coverage is intended to supplement the services provided by the Student Health Service described above and is designed to offset expenses resulting from a major accident or serious illness which might require medical care, hospitalization, and surgery beyond services provided through the Student Health Service. This plan does *not* cover office and home calls except as provided by the Student Health Service. There is a deductible provision for dependent spouses and children of students since these dependents are not covered by regular student health services. This student health and accident insurance plan provides coverage for the entire twelve-month period whereas the services of the Student Health Service are available only during the time the university is in session. This insurance is especially useful in paying for a specialist's fees when recommended by a Student Health Service doctor.

Financial Aids

Financial aids are available through the Office of Student Financial Aids to qualified students who are in need of financial assistance to meet the normal costs of college attendance by helping them secure part-time employment, scholarships, National Direct Student Loans, Federal Guaranteed Student Loans, and Basic and Supplemental Educational Opportunity Grants. Students applying for admission to the University of Idaho and seeking financial aid may make application by completing a financial aids application blank which is sent by the Admissions

Office, together with a descriptive brochure, to each new applicant. In order to receive full consideration, completed applications for financial aid must be received by March 15 for the following fall semester. If application documents or the descriptive brochure were not received, they may be obtained from the Office of Student Financial Aids, University of Idaho, Moscow, Idaho 83843.

Students who qualify under the College Work-Study Program (with respect to a definite and demonstrable financial need) may obtain part-time employment with the university. Application for work-study is made as part of the general application for financial aid. The Student Financial Aids Office also assists students in finding other part-time employment. In most cases part-time job placements cannot be made before a student actually arrives in Moscow and has registered.

Veterans' Benefits for Educational Assistance

A veteran is entitled to educational assistance if he or she has served at least 181 days of active duty, any part of which occurred since January 31, 1955, according to Public Law 89-358. 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 twelve credits or the equivalent, and graduate students must carry nine credits or the equivalent (see regulation "O-1" in part 3).

An advisory service is available to veterans. Additional information, advice on the benefits, or application forms may be obtained by writing to the veterans' adviser, Office of Student Advisory Services, University of Idaho, Moscow, Id. 83843.

Special Awards

Many awards are made each year in recognition of outstanding achievement in both academic and nonacademic pursuits. The listing of specific awards and recipients is included in the annual commencement program. A description of each award may be obtained from the Student Union program director.

Recreational, Social, and Extracurricular Activities

The Student Union is the recreational and social center for the university community. Facilities include bowling alleys, billiard tables, music listening rooms, cafeteria, snack bar, ballroom, theater, and meeting and banquet rooms. Dances, art exhibits, speakers and forums, weekend movies, concerts, and games tournaments are scheduled in the Student Union Building during the school year. The twice-weekly campus newspaper, *The Idaho Argonaut*, and the yearbook, *The Gem of the Mountains*, are published by ASUI (Associated Students of the University of Idaho). These publications offer opportunities for those interested in journalism or photography. ASUI (to which every student who pays regular fees belongs) supports outdoor recreation programs, drama and music groups, and provides occasions for entertainment and participation. The University of Idaho competes in intercollegiate football, basketball, baseball, track, tennis, swimming, golf, cross country, and wrestling. Extensive intramural athletic programs are available for both men and women under the direction of the Division of Health, Physical Education and Recreation. The ASUI operates an 18-hole golf course adjacent to the campus. Recreational facilities located on the campus include the Kibbie-ASUI activity center, tennis courts, which are lighted for night play, indoor and outdoor handball courts, and swimming pools.

Student Organizations

University of Idaho students may organize or join associations to promote their common interests. There is a large number of student organizations on campus with varied objectives and programs. A list of these organizations, together with names of current officers, is maintained and information concerning them may be obtained from the program director, Student Union. The annual publication of the ASUI, entitled *Student Handbook*, contains a description of current student organizations.

Career Planning and Placement Center

Organized to assist University of Idaho students plan their careers, the Career Planning and Placement Center (1) helps students to identify, reaffirm, or—if necessary—modify their career objectives and (2) aids them in obtaining employment according to their training, ability, and experience. Towards the fulfillment of these objectives, the center maintains a career-planning library, available for use by any University of Idaho student, and serves as the central contact agency between students from all colleges of the university and prospective employers.

At specific times throughout the year, business, government, industry, and educational institutions send their representatives to the campus for the purpose of interviewing students and graduates. Arrangements for these visits are

made with the Career Planning and Placement Center. This service is available to all students purposefully identified with programs of study at the University of Idaho. All candidates registering with the center must be sufficiently well-known by faculty members so that a minimum of two recommendations can be obtained.

For students to make themselves available for these services, they must register with the center in advance. The initial contact with the center must be made by the student. There is no charge for this initial registration. All registration and services are strictly on a voluntary basis.

Alumni Association

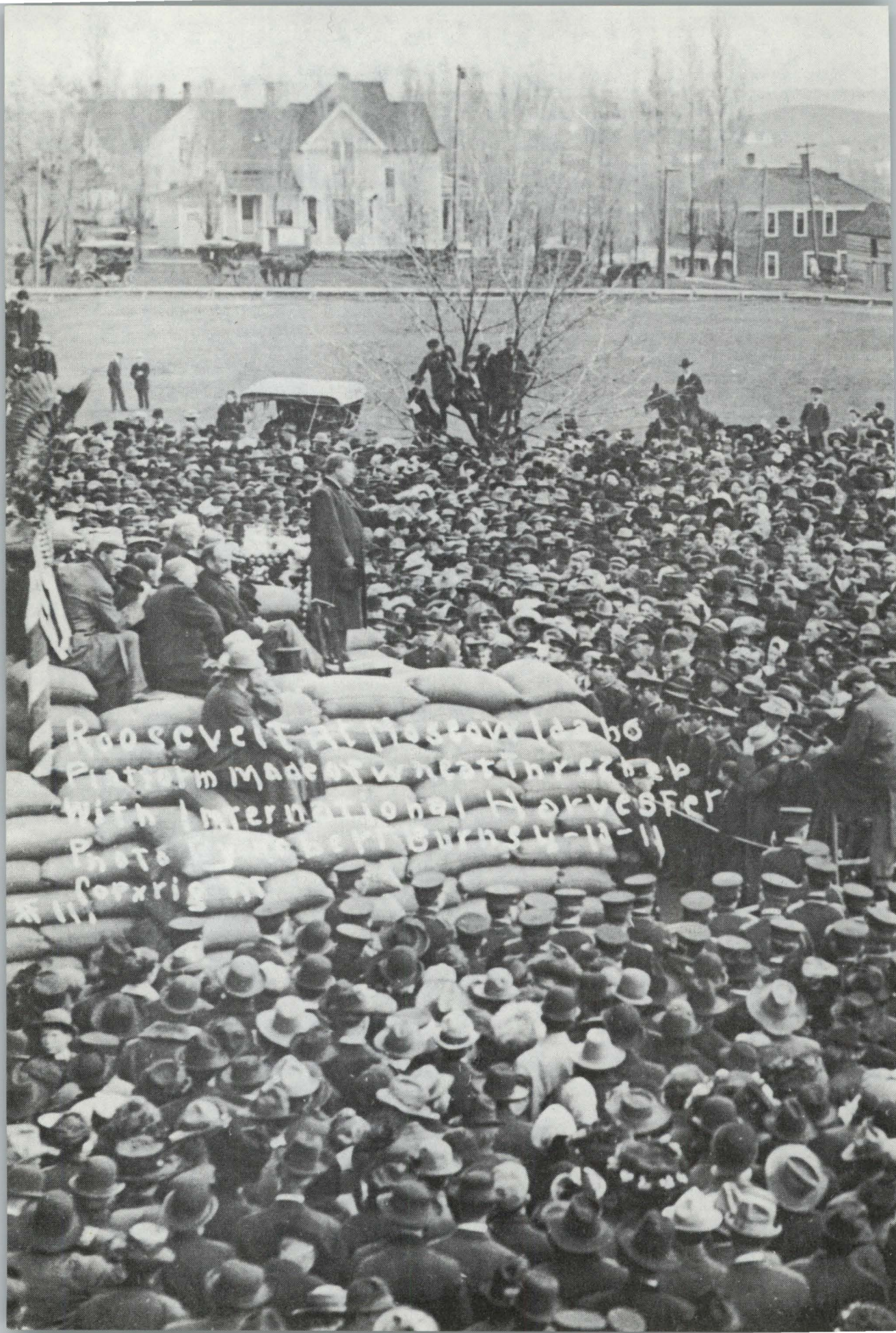
The University of Idaho Alumni Association is composed of all graduates, former students, and honorary alumni. Activities of the 36,000 plus members are led by a full-time director of alumni relations and an elected executive board, including the ASUI president. These leaders, along with area chairmen in Idaho and club officers throughout the country, keep alumni informed of their alma mater, encourage their support of its operation, and appraise university officials of alumni opinions. The Alumni Association honors outstanding graduates by electing them to the Alumni Hall of Fame, selects honorary alumni, honors superior intramural athletes, and presents scholarships to children of alumni. Areas of recent emphasis include utilizing alumni experts on university advisory boards, forming and building alumni chapters nationally, strengthening liaison with present students, and supporting Development Office functions.

Religious Activities

The University of Idaho is served by three campus religious centers: Campus Christian Center, corner of University and Elm; LDS Institute of Religion, 902 Deakin Street; 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. In addition to the usual services of worship and church school classes, most of the churches help maintain and staff campus-oriented religious centers. Church addresses are readily available in the Moscow phone directory. Church away from home is provided by the local churches of Moscow. A challenge for growth and development of one's religious perspective is offered by the campus religious centers.

Facing page: Hays Hall Fashion Tea, 1931.



General Requirements and Academic Procedures

Some of the regulations in this section were in the process of revision at the time this catalog went to press. Consult the catalog supplement in the official time schedule of classes for any changes.

THE FOLLOWING PROCEDURES AND REGULATIONS have been adopted to help students, faculty and staff members, and administrators successfully carry out the overall academic program of the university. Careful adherence to the items in this part 3 will enable everyone concerned to cooperate effectively. It is the responsibility of the registration adviser, major professor, or dean to assist students to understand and comply with academic procedures. The registrar assists by checking student records for compliance with the regulations in this catalog section. Students, with the help of faculty advisers, should check their records at each registration to ensure that they are systematically and progressively fulfilling their degree requirements. Students are responsible for knowledge of and compliance with academic procedures and standards, but should seek guidance whenever questions arise. An academic provision or standard is waived only when a student successfully petitions the appropriate departmental, college, or university committee. Student petitions relating to the interpretation, application, or waiver of the general requirements and academic procedures in this catalog section should be presented to the Administrative Council's Petitions Subcommittee on forms available in departmental and college offices.

Regulation "A" — Matriculation

Applicants for enrollment in any course offered by the university for college credit, except correspondence study and extension, submit certain personal data and credentials covering all previous academic work. (See "Admission to the University" in part 2.) After the university has received these credentials and approved the application, a packet of registration forms is prepared and the applicant's initial registration in the university concludes the matriculation process.

Regulation "B" — Registration

1. **Preparation of Registration Materials.** Official registration forms are prepared for new students as described above. They are also prepared for students enrolled in a given semester for the succeeding semester. However, individuals enrolled in the spring semester who plan to enroll in the summer must apply for a registration form at least three weeks prior to the opening of summer session. Similarly, students entering the university in the summer who were not enrolled during the spring semester and who plan to continue in the fall semester must apply for a registration form at least three weeks prior to the opening of the fall semester. Former University of Idaho students who have not been enrolled in the university for a semester or longer should notify the registrar of their intention to reregister at least one month prior to the opening of the term. Such individuals will be required to submit transcripts from any institutions attended since their last registration at the University of Idaho, and they may also be required to complete a resident questionnaire. Failure to meet the deadline may cause a delay in completing registration.

2. **Admission to Classes.**

a. Instructors do not admit to class individuals whose names do not appear on the class roster, or anyone for whom they have not signed an "add" card.

b. At the beginning of each semester or other academic session, students, with their adviser's aid, complete a trial study list. The information is then transcribed to the official registration form which is signed by the adviser and is checked by such intracollege procedures as the student's college may require. After receiving department validation for each course to be taken for credit, for zero credit, or as an auditor, the student files the completed registration form with the registrar. After payment of fees, registration is complete and admission to classes is authorized.

3. **Auditing Classes.** Auditing a course consists of attendance without participation or credit. Only lecture classes may be audited.

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

a. Registrants are expected to do the assigned work of the course and attend its sessions. They receive grades on the same basis as the other students and the grades are entered on permanent records.

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

c. Courses taken for zero credit do not fulfill requirements.

d. By definition, zero-credit grades have no effect on the student's grade point average. Neither do they affect academic eligibility, disqualification, or reinstatement.

e. Students enrolled for zero credit count as

Facing page: Theodore Roosevelt speaking from a platform of Idaho grain in front of the Administration Building, April 13, 1911.

regular registrants for statistical purposes, such as listing of course enrollments, computing instructors' loads, and determining departmental services.

5. **Nonresident Courses.** Students while in residence are permitted to carry extension or correspondence study courses for college credit only with the prior written approval of their academic dean. Credit for extension or correspondence study courses will not be accepted without this written approval.

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

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 generally acquiring the foundation for advanced study; therefore, lower-division students shall not take upper-division courses.Exceptions may be made for students who have fulfilled the prerequisites and who are well prepared in the field of study. In such cases, the instructor of the upper-division course concerned may, with the concurrence of the student's adviser and academic dean, authorize the exception.

8. **Registration of Undergraduate Students in Graduate Courses.** Undergraduate students may register in graduate courses under the procedures outlined in the catalog of the Graduate School with the prior written approval of the instructor of the course, the student's adviser, and the dean of the Graduate School.

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 or certificate at a later date. (See regulations "J-7-b" and "J-7-c.")

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.

11. **Pass-Fail Option.**

a. **Undergraduate Students.**

(1) After consultation with their advisers, undergraduate students who have a cumulative grade point average of 2.00 or higher are permitted to enroll in one course per semester under this "pass-fail 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 on the basis of P or F. Within the limitations specified above, undergraduates 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 4 of this catalog;

(b) courses taken to meet the distribution requirements of the college or curriculum, unless allowed for pass-fail enrollment by the academic 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 academic department. In the case of interdepartmental curricula (e.g., American studies), "academic department" means the departments, colleges, or other units involved.

(2) Cadets and midshipmen in the Officer Education Programs may enroll under this regulation in courses required because of their affiliation with the OEP **only** with the permission of the head of the OEP department concerned.

(3) A maximum of twelve credits earned in courses under this regulation may be counted toward a baccalaureate degree. (For the regulation covering students graduating under a catalog issue prior to 1976-77, see the applicable catalog issue.)

b. **Graduate Students.**

(1) With the approval of their major professor (or adviser in the case of an unclassified student) and the dean of the Graduate School, gradutate students may enroll in a limited number of courses under this "pass-fail option." This procedure is separate from taking courses which are regularly graded on the basis of P or F.

(2) Courses which may be taken by graduate students under this regulation are: (a) any course which 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 a grade of A or B.

(3) Of the minumum number of credits re-

quired 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 "pass-fail option."

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

(5) Unclassified students may enroll for courses under this option with the approval of their adviser (if assigned) and the dean of the Graduate School; however, if at a later date an unclassified student is admitted to a degree or certificate program, the above regulations apply and no changes to regular letter grades will be permitted.

c. **Adds, Drops, and Changes.** Students may add or drop a pass-fail-option course in the same manner as a regular course, and they may change from pass-fail to regular-grade classification, or vice versa, if they do so no later than the last day to add courses or change course sections. Students may make these changes by securing the signature of their adviser or major professor.

d. **Reporting of Grades.** Instructors are not notified as to which students are enrolled in courses under this pass-fail option. Grades are reported in the same manner as grades in courses taken on a regular-grade basis. The registrar is responsible for converting grades of D or above, for undergraduates, or C or above, for graduates, to grades of P on students' academic records.

12. **Registration for Fewer Credits than Authorized.** Students may register for a particular course for fewer credits than the number indicated for the course in the official time schedule of classes (they may also register for zero credit under the conditions set forth in regulation "B-4"); likewise, departments may list courses in the time schedule for fewer credits than the number authorized by this catalog.

Regulation "C"—Changes in Registration

Students may change their registration as provided in the schedule shown below. All registration changes are effective on the date they are filed with the registrar, except in the case of withdrawal from the university prior to the final four weeks of the semester which is effective on the date the indefinite-leave-of-absence card is filed in the office of the student's academic dean (see regulation "G"). Students may not drop a course by simply staying out of class.

Semester Schedule for Changes in Registration

See calendar in the front of the catalog for dates. (The schedule for changes during summer sessions is substantially different. See the calendar in the front of the summer bulletin for exact dates.)

DESIRED CHANGE	First two weeks of classes	Third to last four weeks of the semester	Last four weeks of the semester
Drop course	File form with registrar. No grade recorded.	File form with registrar. Grade recorded as withdrawal (W)*.	For compelling reasons only, upon successful petition to Administrative Council (file petition through dean's office). Grade recorded as withdrawal (W)*.
Add course	File form with registrar.	File form with registrar. Only for accelerated courses or by petition through dean's office. Permission of instructor required.	
Change course section	File form with registrar.	By petition through dean's office in special cases only.	
Withdraw from university. (See regulation "G.")	Obtain form from Student Advisory Serv., then file it in academic dean's office. No grade recorded.	Obtain form from Student Advisory Serv., then file it in academic dean's office. Grade recorded as withdrawal (W)*.	For compelling reasons only: complete medical withdrawal or petition Administrative Council (file petition through dean's office). Grade recorded as withdrawal (W).*
Change in undergraduate curriculum or major. Consult the graduate bulletin 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 cumulative grade-point average of 2.00 or better is normally required to transfer from one college of the university to another; however, any student enrolled in the university may transfer to the General Studies Program by contacting 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 College of Law, consult the dean's office for information relating to grades assigned when students withdraw from law courses after the second week of classes.

Regulation "D"—Credit and Continuing Education Unit

1. **Credit Defined.** Each course is evaluated by a system of semester credits related to time spent in class, laboratory, study/preparation, or field investigation. A credit is expected to require a total of three clock hours of scholarly activity per week throughout the semester. Ordinarily one hour of class attendance is scheduled for each credit, but any combination of class attendance, laboratory, study/preparation, or field investigation may be arranged. When students are permitted to register for credit in workshops and similar short courses, credit is granted on the basis of one semester credit for each week of full-time scholarly activity required. 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.

2. **Credit-Load Limitations.**

a. **Undergraduate.** Full-time undergraduate students may register for a maximum of twenty credits per semester. This number may be increased to twenty-two with the approval of the student's academic dean. Registration for more than twenty-two credits must be approved by the Petitions Subcommittee of the Administrative Council (submit petitions via dean's office). The corresponding limitations during the regular eight-week summer session are ten and eleven, respectively. (Also see regulation "J-5.")

b. **Graduate School.** There is no specified maximum credit limitation during the fall and spring semesters for students in the Graduate School. During the regular eight-week summer session the maximum credit load for graduate students is ten credits. Instructional assistants and graduate assistants are limited to an average of twelve credits a semester. During the regular eight-week summer session instructional assistants and graduate assistants are limited to six credits. Exceptions to this regulation require the approval of the dean of the Graduate School.

c. **Full-Time Employees.** Full-time employees of the university may register for a maximum of six credits each semester and three credits during the regular eight-week summer session. Written approval by the employee's department chairman and dean or division head must be attached to the official registration form.

d. **Nonmatriculated.** Nonmatriculated students who have registered for two semesters pursuing twelve credits or more are required to petition the Admissions Committee if they wish to continue as nonmatriculated students pursuing more than a twelve credit load. See the section on "Admission as a Nonmatriculated Student" in part two.

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 the section headed "Applicants With Previous College Credit" under "Admission to the University" in part 2; also see regulations "E-4" and "J-5.")

4. **Challenged Courses (Credit by Examination).** Students may challenge courses—earn credit by examination—under the following regulations:

a. No examinations under this regulation may be conducted during the last two weeks of any semester or other academic session.

b. Students are not permitted to challenge a prerequisite course after having completed the advanced course.

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

d. Students must submit evidence to the instructor concerned that they have sufficient knowledge to challenge a course. After students have been granted permission to challenge a course by the instructor and the chairman of the department in which the course is offered, as well as by their academic dean, the extramural-credit fee is paid and the completed petition is then filed with the registrar. The registrar checks the student's official record and, if the student is eligible to take the advanced-credit examination, the instructor will be notified by card to proceed with the examination.

e. Undergraduate students must score C or higher to pass and obtain credit. Graduate students must score B or A to pass and obtain credit. A passing grade is entered as P and is not included in grade-point computation. If students do not meet the foregoing standards, no entry is made on their academic records.

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 chairman of the student's major department and the dean of the Graduate School.

5. **Review and Prerequisite Courses.** Students will not receive credit for courses taken in review or for courses which are prerequisites of courses they have already completed, except as stated in item 1 of regulation "I."

6. **Continuing Education Unit.** Learning ac-

tivities 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 set forth by the (national) Task Force on the Continuing Unit: A continuing education unit is expected to require ten 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, laboratory assignments, field trips, and supervised study.

Regulation "E" — Grades

1. **Grading System.**

a. For purposes of reporting and record, the academic work of undergraduate and graduate students 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; **P** — pass (see below); **IP** — in progress (see paragraph 2, below); **N** — unsatisfactory and must be repeated (used only in Eng 103 and 104).

b. Grades of P (pass) may be reported at the option of the department, on a course-by-course basis, in noncompetitive courses, such as practicum, internship, seminar, directed study, and independent study. Grades of P or F are also reported in courses carrying the statement, "Graded on the basis of P or F," in the official course description. In those courses in which P grades 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 course, except as provided in regulation "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.

c. Midsemester grades in undergraduate courses must also conform to the above regulations. It is permissible to report on the basis of P or F at midsemester only in courses that have been approved for grading on this basis.

2. **Grades in Graduate Thesis or Dissertation.**

a. The grade of IP (in progress) may be used to indicate at least minimally satisfactory progress in courses 500 (Master's Research and Thesis) and 600 (Doctoral Research and Dissertation). When the thesis or dissertation is finally accepted, or when a student ceases to work under a particular major professor, the IP grades are to be removed (see below). Grades of IP are considered to represent at least grades of B or P. If in any given semester the major professor considers the student's progress unsatisfactory, an appropriate letter grade should be assigned for that semester.

b. Departments may use on a department-wide basis either the P or 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 the fifteen 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).

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

4. **Computing Grade Point Averages.** The following scale of grade points is used in computing grade point averages for all residence courses attempted at the University of Idaho: A — 4, B — 3, C — 2, D — 1, F — 0. Grade points are not computed for transfer, correspondence study, extension, advanced placement, credit by examination, or for courses graded I, IP, P, W, or N. However, credits earned at other recognized institutions that are earned subsequent to regular enrollment for at least one semester or summer session at the University of Idaho are computed in the student's University of Idaho cumulative grade point average on the same basis as credits earned on the Moscow campus. For the purposes of this regulation, "regular enrollment" does not include enrollment as a nonmatriculated student. (For regulations covering students who entered the university prior to the 1971-72 academic year, see the applicable catalog issue.)

5. **Raising a Grade by Repeating the Course.** A student who has received a grade of D or F in a course at the university or elsewhere may repeat the course IN RESIDENCE on the University of Idaho campus in an effort to raise the grade, provided a more advanced course for which the first course is a prerequisite has not been completed in the meantime. While all grades received

remain on the record, only the grade received the most recent time the course is taken is counted for grade point purposes. (For regulations covering repeats prior to the 1972-73 academic year, see the applicable catalog issue. Also see the College of Law section in part 4 for the exception to this regulation applicable to students in that college.)

6. **Reports of Grades and Grade Changes.** Grades are reported to the registrar for all courses at the end of each academic session and also for undergraduate courses at midsemester. (See the deadlines for reporting grades in the academic calendar in the front of this catalog.) Students are furnished copies of these grade reports. The assignment of grades and changes in grades, whenever they occur, are the sole prerogative of the instructor and they 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, i.e., A, B, C, D, F, P, I, IP, N. 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 in response to a student petition it is officially determined that a grade change seems warranted and the instructor cannot be contacted (it is assumed that every reasonable effort to contact the instructor will be made), the chairman of the department in which the course was offered may assume the prerogatives of the instructor in connection with the grade change.

Regulation "F"—Incompletes

1. An incomplete is assigned at the end of the semester only when the student has been in attendance and has done satisfactory work 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 not be assigned in the case of withdrawal from the university unless the withdrawal occurs within the last three weeks of the semester. If a final grade of incomplete is recorded, the instructor shall indicate in writing with the class roster what the student must do to remove the deficiency. The instructor shall also indicate with the foregoing written statement what permanent grade is to be entered on the student's academic record in the event that the incomplete is not removed by the applicable deadline.

2. **Removal of Incompletes.** Incompletes should be removed within six weeks after the first day of classes of the semester or summer session in which the student next returns to the university. Incompletes not made up before that date automatically revert to the grade indicated by the instructor with the class roster (see item 1 above) unless the student has previously filed with the registrar a permit-for-extension-of-time card, signed by his or her academic dean and the instructor concerned. If an extension is granted, incompletes not made up before the expiration date automatically revert to the grade indicated by the instructor with the class roster. It is the student's responsibility to see that incompletes are made up before the expiration date. Removal-of-incomplete cards must be received by the registrar prior to these dates. In some cases a student's eligibility to reregister is contingent upon removal of incompletes. In such cases an extension of time for removal of incomplete grades may not be granted; furthermore, if students become academically disqualified (see regulation "L") after removal of the incomplete, their registrations may be cancelled.

3. **Incompletes Received at End of Final Semester.** An incomplete in a required course received by a candidate for a degree or certificate at the end of the semester or summer session in which the requirements for the diploma are otherwise completed reverts immediately to the grade specified by the instructor on the class roster; however, the student is permitted to complete the course work involved within the usual time limit and raise the grade on the permanent record.

4. **Extension Courses.** Incompletes in extension courses must be removed within one year. Incompletes not made up within one year automatically become withdrawals. No extension of time will be granted. Students may register for courses during the allotted time provided that the total load, including the incompletes, does not exceed six semester credits. If, during the year, students enroll for residence courses, regulation "F-2" becomes applicable.

Regulation "G"—Withdrawal from the University

1. **Standard Withdrawal Procedures.**

a. A student who wishes to withdraw from the university prior to the final four weeks of the semester should contact Student Advisory Services (241 University Classroom Center) where the withdrawal is initiated and further instructions are received for completing the indefinite-leave-of-absence card. The date the card is filed in the office of the student's academic dean is the official date of the withdrawal. Deans cannot accept indefinite-leave-of-absence cards after the start of the final four weeks of the semester.

b. No student is permitted to withdraw from the university during the final four weeks of the semester except for compelling reasons and after successfully petitioning the Administrative Council *or* after completing a medical withdrawal as explained in section 2 of this regulation. Examples of compelling reasons are: death or

serious illness or injury in the student's immediate family or serious student illness or injury. Petitions for permission to withdraw during the final four weeks of the semester are forwarded *via the student's academic dean* to the Administrative Council on forms available in departmental and college offices. If the student's petition is approved, the Administrative Council will determine the effective date of the withdrawal. (See "Refund of Fees" in the section headed "Fees and Expenses" in part 2.)

2. **Medical Withdrawal Procedures.**

a. The director of the Student Health Service is authorized to grant a student a withdrawal from the university for medical reasons.

b. **Voluntary Medical Withdrawal.** If a student wishes to leave the university for medical reasons, a withdrawal is initiated by contacting Student Advisory Services (241 University Classroom Center). The dean of Student Advisory Services will request the director of the Student Health Service to evaluate the request. The director may request substantiating information from whatever sources are deemed necessary. Upon the affirmative written recommendation of the director, the dean of the Student Advisory Services will assist the student in completing official withdrawal from the university.

c. **Emergency Transfer to Institutional Care.** The director of the Student Health Service is authorized to act as the representative of the university in emergencies that require the transfer of a student, under Idaho laws, to a community or state health facility. Under such circumstances, the student may be placed on medical withdrawal from the university at the discretion of the director.

d. **Mandatory Medical Withdrawal.** The director of the Student Health Service is authorized to order an examination and mandatory medical withdrawal of a student if the director 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.

(1) **Request for Evaluation.** The director of the Student Health Service will request the student to seek immediate professional evaluation by a university physician, psychiatrist, or psychologist, or, at the student's expense, by a private physician, psychiatrist, or psychologist. A report of this evaluation shall be presented to the director with a specific recommendation as to whether or not a medical withdrawal should be initiated.

(2) **Evaluation Conference.** The director of the Student Health Service will set a date and time for a conference for final determination of the withdrawal. The student will be informed in writing of the scheduled conference. The student and the student's representative are entitled to attend the conference. The director shall refer to reports, recommendations, and evaluations pertinent to the case and is empowered to request any additional independent medical or psychiatric examinations of the student that may be relevant.

(3) **Determination of Director.** If, following the evaluation conference, the director of the Student Health Service determines that the student's medical or psychiatric condition warrants mandatory medical withdrawal, the director will so inform the student in writing and will instruct the dean of Student Advisory Services to process a medical withdrawal. If, following the evaluation conference, the director determines that the student's medical or psychiatric condition does not warrant mandatory medical withdrawal, the director will so inform the student in writing, with a copy of the report to the dean of Student Advisory Services.

(4) **Finality of Determination.** Decisions made by the director of the Student Health Service pursuant to these procedures shall be final. The student may appeal to the vice president for student and administrative services (designee of the president of the university) to order the determination reopened in cases where a procedural error is alleged to exist.

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

3. **Grades for Students who Withdraw.** Grades for a student who withdraws are recorded as provided in regulations "C" and "F-1." A student who withdraws from, or leaves, the university without official approval will receive failing grades in all courses in which he or she is registered.

Regulation "H"—Final Examinations

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

a. No quizzes or examinations shall be given during the lecture-recitation periods during the week before the final-examination week. Examinations during laboratory periods and in physical education activity classes, final in-class essays in English composition classes, and final oral presentations in speech classes are permitted during that week.

b. Instructors are required to meet their classes during the examination period for which they are scheduled during the final-examination week, either for an examination or for a final class session.

c. Final examinations or final class sessions are to be held in accordance with the schedule approved by the Faculty Council and published in the time schedule of classes. Instructors may deviate from the approved schedule only upon the recommendation of the appropriate college dean and the prior approval of the academic vice president.

d. Where examinations 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.

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.

f. Final grades for each course must be filed with the registrar within seventy-two hours after its scheduled examination period.

g. Athletic contests shall not be scheduled during the final-examination week; further, if a change in the academic calendar causes a scheduled athletic contest to fall within the final-examination week, every reasonable effort shall be made to reschedule the athletic contest.

2. Students who miss final examinations without valid reason receive grades of F in the examinations. Students who are unavoidably absent from final examinations shall present evidence in writing to the instructor concerned to prove that the absence was indeed unavoidable.

3. Instructors, at their discretion and with the concurrence of their departments, may excuse individual students from final examinations when such students have a grade average in the course that will not be affected by the outcome of the final examination. In such instances, the grade earned prior to the final examination shall be assigned as the final grade for the course.

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

Regulation "I"—Advanced Placement for Undergraduates

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

1. With prior approval by the chairman of the department concerned, an undergraduate student 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 grade of C or better in the advanced course is eligible to receive credit and a grade of P for any bypassed courses in the same subject-matter area. The necessary forms must be initiated and forwarded by the department concerned. **Advisers should make sure that students are aware of this opportunity for obtaining advanced-placement credit.**

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 upon completion of a yet higher vertically related course at the University of Iaho.

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

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

5. With the approval of the Univerisity Curriculum Committee's Subcommittee on External Study/Experience, undergraduate students may be awarded lower-division and/or upper-division (100-499 series) credit in recognition of university-level knowledge and/or competence gained in situations outside of the jurisdiction of the University of Idaho (e.g., 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 department chairman 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 "external study/experience" and a grade of P (pass) is assigned. The applicability of credits earned through external study/experience toward the satisfaction of specific degree requirements will be determined by the department and division through which the degree is to be granted. (See regulation "J-5.") Petition forms for external study/experience are available from the registrar.

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

Regulation "J"—General Requirements for Baccalaureate Degrees

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

1. **Credit Requirements.** For the minimum number of credits required in each degree program, see the major curricula of the various degree-granting units in part 4. A minimum of thirty-six credits in courses numbered 300 or above is required for a baccalaureate degree.

2. **Residence Requirements.**

a. After a candidate is within forty credits of completing the total number of credits required for the particular baccalaureate degree sought, he or she must complete IN RESIDENCE, on the University of Idaho campus or at the Idaho National Engineering Laboratory, a minimum of thirty-two credits in courses that have University of Idaho catalog numbers. Exceptions are made for study abroad and student exchange programs with the prior approval of the student's academic dean. Among the last forty credits, the candidate may count a maximum of eight credits earned at other senior colleges or universities, or through any of the following means: extension, correspondence study, bypassed courses, credit by examination, College Level Examination Program (CLEP), external study/experience, technical competence, or certain educational programs sponsored by the armed forces.

b. Candidates for preprofessional degrees (e.g., B.S.Pre-Med.) which require the completion of professional courses not offered at the University of Idaho must complete their junior year (thirty-two credits) in residence on the University of Idaho campus.

c. For special residence requirements applicable to students studying at adult education centers, see "Summer Sessions and Continuing Education" in part 4.

3. **Subject Requirements**

a. **English.** The basic requirement for graduation is proficiency in written English equal to that required for the successful completion and a grade of P (pass) in University of Idaho courses Eng 103, Basic Skills for Writing, and Eng 104, Essay Writing. Students who were enrolled in the University of Idaho prior to the opening of the 1975-76 academic year and who had successfully completed or bypassed either former Eng 1 or 101 at the University of Idaho (or a course of comparable level and content at another recognized institution) are deemed to have satisfied the requirement. For all other students, including transfer students, the following provisions apply:

(1) Any student who has attained a satisfactory score on the CEEB (College Entrance Examination Board) English Achievement or Scholastic Aptitude Test (Verbal), or the ACT (American College Testing) English Test, is deemed to have satisfied all of the requirement. Upon the English Department's evaluation of the essay portion of the CEEB Advanced Placement Program Tests, any student who attained a score of 4 or 5 on the objective part also may be deemed to have satisfied all of the requirement. Students who satisfy the requirement in either of these ways will be awarded credit and a grade of P (pass) in Eng 103 and 104.

(2) Students who have not satisfied the requirement in this manner will be placed in either Eng 103, or 104, depending on their scores on the tests cited above. Students placed in Eng 104 will take the English Department's proficiency test and, based on their performance on it, will be judged to have satisfied all, half, or none of the requirement. Those deemed to have satisfied all of the requirement will be awarded credit and a grade of P (pass) in Eng 103 and 104. Those deemed to have satisfied half of the requirement must take Eng 104, but will be awarded credit and a grade of P (pass) in Eng 103.

(3) Although the University of Idaho accepts credits in comparable writing courses taken at other recognized institutions, students who have taken such courses but who have not satisfied the requirement through the provisions of

paragraph 1, above, must demonstrate that they have attained proficiency equivalent to that required for the successful completion of Eng 104 by passing the English Department's proficiency test prior to graduation. Such students may attain the required proficency through independent study or by taking University of Idaho courses. (See credit limitation in "5-d," below.)

b. **Physical Education.** Two activity courses (selected from PE 105, 106, 107, or 108), one credit per course, each course taken during a different academic session, for a total of two credits. It is expected that these courses will be taken during the freshman year; they must be completed prior to graduation. This requirement does not apply to students who are: (1) excused by the university physician, (2) thirty years of age or over, (3) majoring or minoring in physical education, (4) mothers, (5) veterans whose military service was of at least one year's duration, or (6) certified by the Division of Health, Physical Education and Recreation as having demonstrated equivalent proficiency. No credit shall be granted in connection with such exemptions. Students who transfer from other accredited institutions with twenty-six or more semester credits will be deemed to have fulfilled this requirement. Students who transfer with fourteen or more (but less than twenty-six) semester credits, and who have not previously completed two terms of physical education activity courses, will be required to complete only one activity course here.

4. **Grade Requirements.** To qualify for the baccalaureate degree, a candidate must have a cumulative grade point average of 2.00 or better for all residence courses attempted at the University of Idaho. See exceptions under regulations "E-4" and "E-5." (For regulations covering students who entered the university prior to the 1971-72 academic year, see the applicable catalog issue.)

5. **Credit Limitations.** A candidate may count toward a baccalaureate degree NO MORE THAN:

a. Sixty-four credits earned at junior or community colleges, or one-half of the total credits required for the student's intended baccalaureate degree. Note that regulation "J-2" provides that after a candidate is within forty credits of completing the total number of credits required for the particular baccalaureate degree sought, no credits earned at junior or community colleges may be counted.

b. Forty-eight credits in any combination of credits granted for external study/experience, technical competence, correspondence study, extension courses, credit by examination, or advanced placement (e.g., CLEP, CEEB advanced-placement tests, courses completed at military schools, and credit for bypassed courses). This forty-eight-credit limitation may be exceeded for good cause with the approval of the Administrative Council's Petitions Subcommittee (file petition through dean's office).

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

d. Six credits in English composition.

6. **Assignment of Curricular Requirements (Catalog Issue).** In addition to fulfilling the general university requirements for degrees, as set forth in this regulation "J," candidates must satisfy the particular requirements specified for their curricula as published in part 4. The pertinent requirements are those contained in the catalog issue in effect at the time of or subsequent to the candidate's enrollment as a degree-seeking student in the university; however, transfer students may elect to satisfy the requirements of the catalog issse that was in effect at the time of entry into the university of the class to which they were assigned on the basis of the number of credits transferred. 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.

7. **Second Baccalaureate Degree.**

a. Students may complete the requirements for different majors and concurrently receive two different baccalaureate degrees (e.g., B.A. and B.S.Ed.) from the university upon fulfilling the general university requirements for one degree and the departmental and college subject-matter requirements for each. Students who plan to receive 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.

b. Students who have earned a baccalaureate degree at the University of Idaho and who wish to complete the requirements for a different major and receive a second baccalaureate degree must earn at least sixteen credits in residence on the University of Idaho campus after the receipt of the first degree and fulfill the departmental and college subject-matter requirements for the second degree. (See regulation "B-9.") Students may return to the university and earn a second degree carrying the same name as one previously granted by the university, so long as the requirements for a different major are satisfied.

c. Students who have a baccalaureate degree from another recognized institution

and who wish to earn another baccalaureate degree at the University of Idaho must earn a minimum of thirty-two credits in residence on the University of Idaho campus after the receipt of the first degree and fulfill the departmental and college subject-matter requirements for the degree. (See regulation "B-9.")

8. Degree with Double Major. A student may complete two different majors (curricula) offered under a particular baccalaureate degree and have both majors shown on his or her academic records and diploma, 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 the second baccalaureate degree.

Regulation "K"—Academic Honors

1. **Graduation with Honors.** Honors are awarded at graduation upon recommendation of the faculty of the college from which the student graduates. Honors are not awarded with degrees earned in the Graduate School. (This revised regulation is effective for all students who complete degree requirements during the fall semester 1974-75 and thereafter.)

2. **Dean's List.** Students who are carrying the specified number of credits and attain the required grade point average for a given semester are placed on lists prepared for the college deans. These lists are publicized within the university and are distributed to news agencies. The grade point average and number of credits required by the various degree-granting units are listed below:

College or Program	GPA Required	Minimum Credits*
Agriculture	3.30	14
Business and Economics	3.30	14
Education	3.30	14
Engineering	3.30	12
Forestry, Wildlife and Range Sciences	3.00	15
General Studies	3.00	14
Law	3.00	12
Letters and Science	3.30	14
Mines	3.30	14

* Credits for which a student was graded P (pass) are not computed in this minimum.

Regulation "L"—Academic Probation, Disqualification, and Reinstatement

1. **Academic Probation**

a. At the end of a semester, undergraduate students who do not attain the cumulative grade point average required for their rank (see regulation "L-5") 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 the student's cumulative record at the end of that next semester in residence is unsatisfactory he or she will be disqualified and ineligible to continue in the university.

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.

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.

2. Disqualification. 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 a 2.00 is attained. After being academically disqualified, students must be reinstated in order to reregister.

3. **Reinstatement.**

a. After a disqualification, students may be reinstated (i.e., have their eligibility to continue restored) by petition to and favorable action by their college.

b. After their first disqualification, students may be automatically reinstated by remaining out of the university for at least one semester.

c. Students who have been reinstated may continue to be reinstated with the approval of their dean so long as they attain a 2.00 or better grade point average for each semester following the first disqualification.

d. Students who attend another institution while disqualified must meet requirements applying to the admission of transfer students in order to reenter the university.

e. Students who are disqualified and reinstated by their college are reinstated on academic probation.

4. Dean's Referral. 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.

5. **Academic Probation and Disqualification Cutoff by Rank.**

	Minimum Cumulative Grade-Point Average
	1.60
	1.80
	2.00

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

7. **Summer Sessions.** Disqualification at the end of a spring semester does not affect a student's eligibility to continue in the immediately ensuing summer, but he or she must secure a reinstatement in order to register in any subsequent term.

8. This regulation "L" does not apply to nonmatriculated students or to students in the College of Law or the Graduate School.

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

1. **Attendance.** Students themselves are primarily responsible for class attendance; in all cases of absences, students are accountable for the work missed. In the case of officially approved absence and upon 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 university activities (e.g., athletics, debate, music, or theatre arts); (b) confined in the University Hospital; or (c) granted a leave of absence from the university for reasonable cause by his or her academic dean.

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 special form is available from departmental and college officials for this purpose. Absences may be considered excessive when their number equals or exceeds the number of credits in a particular course.

3. **Field Trips and Official Student Travel.** For the purpose of this regulation, "field trip" is defined as any required, course-related student travel, *with the exception of* "local laboratory trips" which are taken in the immediate vicinity of the university—within approximately fifteen air miles of the campus—during regularly scheduled class time or such times as do not conflict with other classes (such local laboratory trips are authorized under procedures established by the individual academic divisions and are paid for from funds allocated to the division).

a. **Missed Class Work.** Students participating in field trips, as defined above, or other official university activities are responsible for contacting the instructors of any classes that will be missed in order to make prior arrangements for making up missed class work.

b. **Approval of Course-Related Field Trips.** Administrative approval for course-related field trips is to be obtained by the individual in charge of the trip as follows:

(1) Each separate field trip provided for in the description of a course in the catalog that will encompass *no more than* three school days requires prior approval by the department in accordance with divisional procedures (application for approval should be made at least one week before anticipated departure). Each such trip that will encompass *more than* three school days also requires prior approval by the University Curriculum Committee and by the academic vice president (more lead time must be provided to allow for the additional approvals).

(2) Each separate field trip NOT provided for in the description of a course in the catalog that will encompass *no more than* three school days requires prior approval by the department chairman and the dean of the college, as well as by the academic vice president (application for approval should be made at least two weeks before anticipated departure). Each such trip that will encompass *more than* three school days also requires prior approval by the University Curriculum Committee (more lead time must be provided to allow for the committee's approval).

(3) After each separate field trip in a specific course, two weeks must elapse before an additional field trip may be scheduled in that same course, unless prior approval is obtained from the University Curriculum Committee.

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 and administrative services (application for approval should be made at least two weeks before anticipated departure).

d. **Emergencies.** In the event that the above approval deadlines cannot be met, the emergency nature of the trip must be approved by the academic vice president prior to the trip.

e. **Costs.** When a college or similar academic division 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 provided for in the course description must also pay their proportionate share, unless excused by the instructor in charge of the trip.

f. **Field-Trip-Completion Deadline.** All field trips and other university-approved student travel must be completed before the start of the last two weeks of the semester.

g. **Unofficial Student Travel.** Travel by students that has not been officially authorized by the appropriate university agent is taken at the student's own risk.

h. **Vehicle Information.** Information concerning student-owned vehicles (registration, insurance, driver's license, etc.) to be used for field trips or other official university business must be filed in the Controller's Office (Rm. 101, Admin. Office Bldg.). Administrators of departments and divisions are responsible for assuring that the required information is filed prior to the initial use of each student-owned vehicle in a given academic year.

Regulation "N"—Class Rating

The following table determines the class rating of undergraduate students:

Class Rating	Credits
Sophomore	26
Junior	60
Senior	94

Regulation "O"—Miscellaneous

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

a. For purposes other than fees, University of Idaho students in all divisions except the Graduate School must carry twelve credits (or equivalent in audits, zero-credit enrollments, etc.) each semester to be classified as full-time.

b. For fee purposes only, students carrying eight or more semester hours (or equivalent) are considered full-time in all state colleges and universities in Idaho.

c. Students in the Graduate School are considered full-time (1) when registered for nine credits (or equivalent) of course and/or thesis work, (2) when registered for less than nine credits but paying full-time student fees and certified by the major professor and the dean of the Graduate School as being engaged in the equivalent of nine credits of study in the pursuit of course work, research, preparation for examinations, or other activities of an academic nature, or (3) when on regular appointment as an instructional assistant or graduate assistant.

d. Veterans and war orphans attending the university 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 at the bottom of this page (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).

e. During the regular eight-week summer session, students are considered full-time for fee and other purposes when carrying six or more semester credits (or equivalent).

f. The president, vice president, and senators of the Associated Students of the University of Idaho are considered full-time when paying full-time student fees and carrying at least the following credit loads: president, three semester hours; vice president and senators, six semester hours.

Minimum Credit Loads for Veteran's Benefits

Benefits	Academic Year Undergraduate	Academic Year Graduate	Summer Session Undergrad. & Grad.
Full	12 or more	9 or more	6 or more
Three-fourths	9-11	6-8	4
Half	6-8	4-5	3
Fees & tuition only	Less than 6	less than 4	less than 3

2. **Academic Performance.** Instructors and students are responsible for maintaining academic standards and integrity in their classes. An instructor may reduce a student's grade for dishonesty in a course, but the effect shall not be greater than the proportionate value of the work involved to the total requirements. If the student deems the reduction of the grade unfair, he or she may appeal through the appropriate department chairman and college dean, and finally to the Academic Hearing Board. Disciplinary penalties for academic dishonesty must be judicially imposed, i.e., handled by the Student Judicial System.

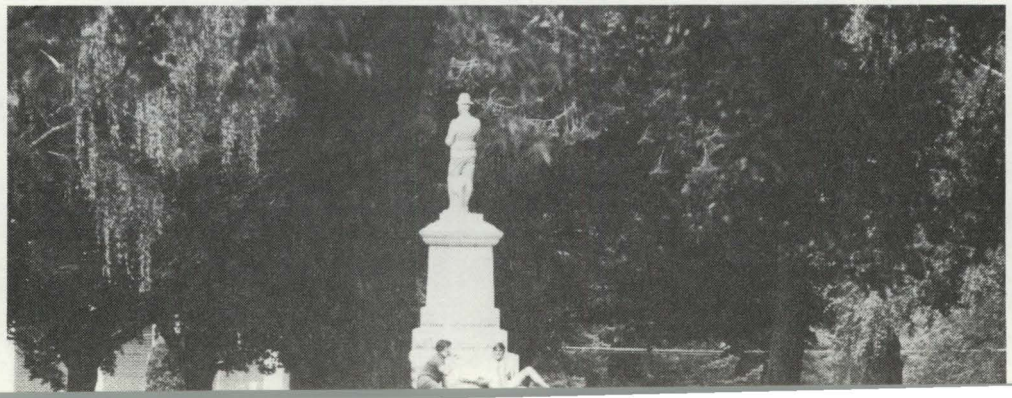
3. **Application for Degrees.** Candidates for degrees must, at the beginning of the last semester or summer session in residence, pay the diploma fee and file an application with the dean of the division in which the degree program is offered. If two degrees are to be received concurrently, separate 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 Controller's Office. (See "Fees and Expenses" in part 2.) The last day for filing applications for undergraduate degrees is the beginning of the third week of the semester or before the beginning of the second week of summer session. The last day for filing applications for advanced or graduate degrees is the beginning of the fourth week of the semester or before the beginning of the third week of summer session. If applications are received by deans after these dates, there is an additional fee if students wish to receive their diplomas at the close of the semester or summer session. If applications for degrees are transmitted by the dean to the registrar less than one month before the end of the academic session in which graduation requirements are completed, the applications will be held by the registrar and processed with those received at the beginning of the next academic session.

4. **Commencement.** Formal commencement exercises are held only at the close of the spring semester; however, diplomas are also issued at the close of the summer session and the fall semester 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 annual commencement exercises. Candidates who DO NOT intend to participate in the formal commencement exercises must notify the dean of the division in which the degree program is offered prior to the close of the academic session in which graduation requirements are completed so that appropriate arrangements can be made. Reservations for caps, gowns, and hoods must be made by the date specified by the resgistrar. Diplomas are ready about five weeks after the end of the academic session in which graduation requirements are completed.

5. **Limitations on Class Size.** Limitations on class size must have the prior approval of the dean of the college in which the course is offered. If it becomes necessary to limit the size of a class on a regular basis, the limitation must be approved through faculty channels and will be made part of the official catalog description of the course. Any student denied admission to a class may appeal in writing to the academic vice president for a review of the particular circumstances involved.

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 which may be accommodated. (See appeal procedure in 5. above.)

7. **Availability of Instructor's 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 courses and course sections to be offered during the immediately ensuing semester or summer session Departments are required to submit the names of instructors for all courses and course sections for publication in the official time schedule of classes. In those instances where it is impossible to determine the teaching assignments of individual members of the instructional staff prior to the deadline for the submission of material for the official time schedule, departments are responsible for making information related to adjustments in teaching assignments generally available to students, advisers, and deans at such time as they occur—before, during, or after registration.

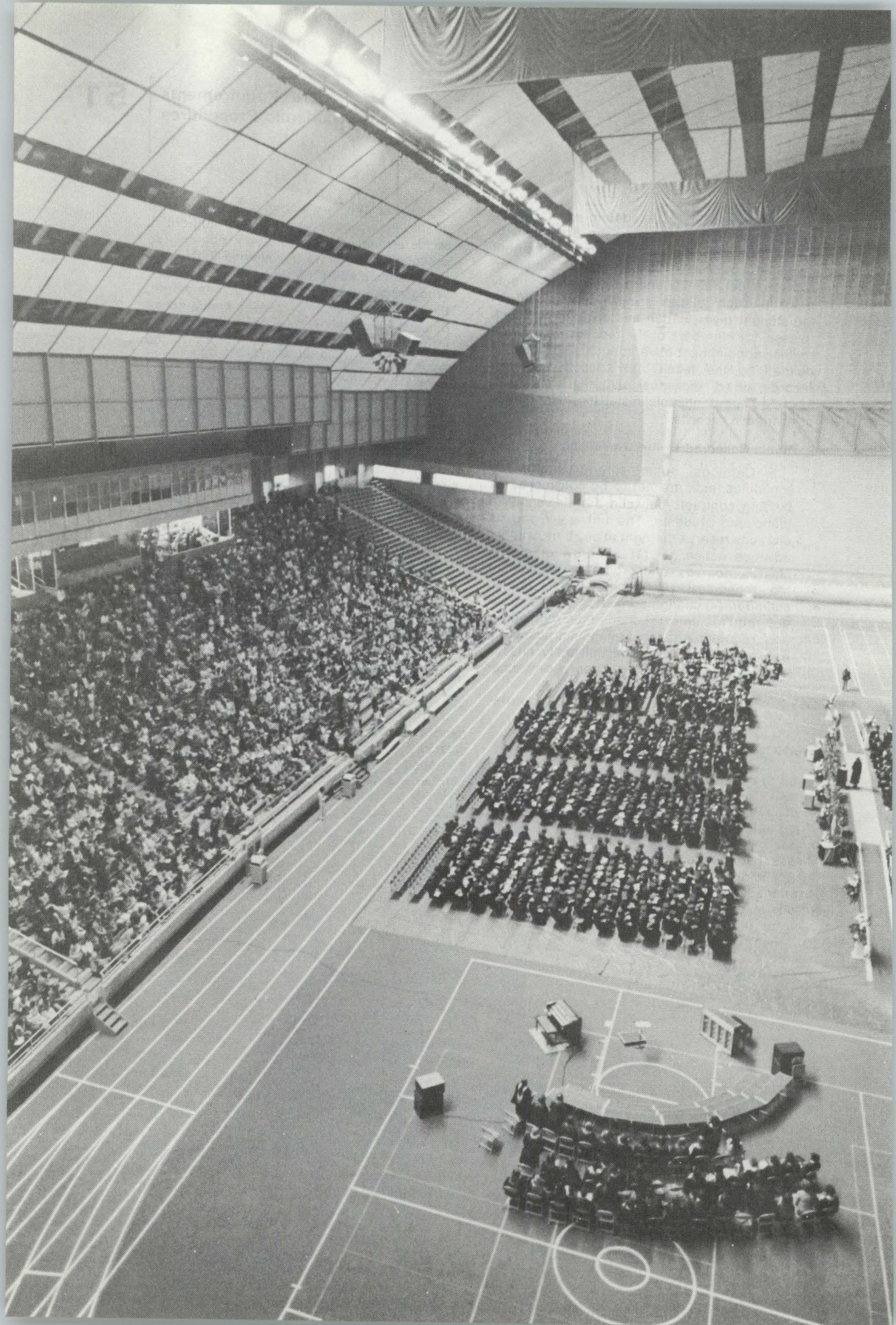


8. **Confidentiality of Academic and Counseling Records.** As provided in the *Statement of Student Rights,* Section V, information about students contained in academic and counseling records is confidential and may be released only when (a) such release is legally compelled, (b) the student gives written authorization for such release, (c) members of the faculty and staff on regular appointment have adequate reasons, as defined by the faculty, to consult academic records, or (d) individual students are neither identified nor identifiable in statistical summaries of academic records.

9. **Rights Reserved to the University.**

a. Catalogs, bulletins, course and fee schedules, etc., are not to be considered as binding contracts between the University of Idaho and students. The university and its divisions reserve 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, the university and its various divisions; and (6) change any other regulations affecting students. Changes shall go into force whenever the proper authorities so determine, and shall apply not only to prospective students but also to those who are matriculated at the time in the university. When economic and other conditions permit, the university tries to provide advance notice of such changes. In particular, when an instructional program is to be withdrawn, the university will make every reasonable effort to ensure that students who are within two years of completing the graduation requirements, and who are making normal progress toward the completion of those requirements, will have the opportunity to complete the program which is to be withdrawn.

b. The university also reserves the right to deny a student the privilege of reregistering and the right not to release a student's records, or any information based on the records, when the student has failed to discharge any obligation to the university. In the case of financial obligations, students who wish to verify the status of their accounts may do so at the cashier's window of the Controller's Office on the first floor of the Administration Office Bldg.



General Studies Program

Francis Seaman, Director (111 Admin. Bldg.).

IN THE GENERAL STUDIES PROGRAM, students at all levels of competency are permitted to enroll in the program, and general studies is elected by many students in order to explore various academic areas before deciding in which college of the university they should enroll for a degree. Students who wish to major in general studies may develop, in consultation with their adviser, a coherent program of studies and work toward the degree of Bachelor of General Studies, as outlined below. Also, credits and grade points earned while a student is enrolled in the program may be applied toward any other degree for which they are applicable.

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 who are undecided between two majors offered by one of the university's colleges should enroll as "undeclared" students in that college rather than in general studies. Students currently enrolled in one of the colleges of the university may transfer to the program by applying to the director.

General Regulations

So that students may have the greatest opportunity to explore various types of subject-matter areas, as well as different types of student programs, there are no requirements during the advisory phase. However, to graduate, a student must either declare as a candidate for the degree of Bachelor of General Studies or transfer to a regular college of the university. In either case he or she must fulfill all of the requirements of the degree, including achieving an overall grade point average of 2.00 (C). It is important that students realize that they may remain in the advisory phase of general studies for five semesters only. Furthermore, students should be aware that normally they may not transfer from general studies to some of the university's colleges unless they have a grade point average of at least 2.00.

Bachelor of General Studies Curriculum

The curriculum leading to the degree of Bachelor of General Studies is designed to provide a maximum of flexibility for undergraduates in planning their programs of studies. Since the only specific subject requirements are the general university requirements in English composition and physical education, students can plan their programs to the best advantage of their particular educational objectives. This means that students must bear the complete responsibility for their choice of courses. Those who plan wisely have the opportunity to obtain an excellent education; those who plan poorly may not receive the maximum value from their years on the campus. The key admonition is: Plan your program carefully.

The major thrust of the B.G.S. degree program is general, or nonspecialized, education. Although it is true that a student could take his or her work in a very limited number of departments, the intent of this program is to permit great latitude in the choice of subjects so that the students may satisfy their particular objectives.

Major. No major other than "general studies" will be certified on the student's diploma or official transcript. Students who wish to have, or need, a designated major, for admission to graduate school or for a particular prospective occupation, should pursue a departmental baccalaureate degree (B.A., B.S., etc.). Naturally, a student may select a combination of courses which will be the equivalent of a major, but this will not be officially recognized by the University of Idaho as a major.

Degree Requirements. In addition to the general university requirements for the baccalaureate degree, including the required English composition and physical education activity courses, sufficient electives must be taken to total 128 credits. *A minimum of forty-eight credits must be earned in courses numbered 300 and above.* Not more than forty 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. degree "look ahead" to see in which departments he or she wishes to accumulate the required forty-eight credits in upper-division courses (those numbered 300 and above). Many of these courses have prerequisites which must be completed during the early semesters of the student's undergraduate career. If planning is delayed, it may very well be that a number of courses will be "unavailable" because of the number or prerequisites required for taking them.

Facing page: The first commencement exercises held in the William H. Kibbie-ASUI Activity Center, May 16, 1976.

College of Agriculture

Auttis M. Mullins, Dean (53 Iddings Wing, Ag. Sc. Bldg.); Don A Marshall, Associate Dean and Director of Resident Instruction; James L. Graves, Associate Dean and Director of the Cooperative Extension Service; Raymond J. Miller, Associate Dean and Director of the Agricultural Experiment Station.

THE COLLEGE OF AGRICULTURE is a part of the land-grant system. Pursuant to federal and state legislation, the College of Agriculture was established as a division of the university to provide resident instruction in agriculture on campus; to conduct research in all fields of agriculture that promise to assist in the development of the state resources; and to carry the results of the research and service to all parts of the state. (See the special sections devoted to the Agricultural Experiment Station and the Cooperative Extension Service in part 6.)

Standing and Advantages

The Resident Instruction Section of the Division of Agriculture of the National Association of State Universities and Land-Grant Colleges, through its Committee on Organization and Policy, maintains close liaison through this membership with all colleges of agriculture in the land-grant system. Through annual national and regional meetings and summer workshops, efforts are coordinated to meet the needs of changing agriculture and maintain high professional standards in educating students for the profession of agriculture.

Students in the College of Agriculture are encouraged to obtain a broad education. In each curriculum, minimum requirements are specified in agriculture, in biological, physical, and social sciences, and in humanities to qualify the graduate to enter professional fields in agriculture. At the same time, each curriculum permits students to choose elective courses that will assist in personal growth, help in understanding the environment, and develop communications skills.

Facilities of the College

The facilities for agricultural instruction consist of the Agricultural Science Building, used as a central office, classroom, and laboratory building; Food Research Center; Dairy Science Center; laboratories in the Life Science Building, Janssen Engineering Building, Buchanan Engineering Building, Agricultural Engineering Building, Veterinary Science Building, and Disease Research Barn; greenhouses; H. C. Manis Entomology Research Unit; dairy cattle, sheep, swine, and beef cattle barns, Meats Laboratory, Judging Pavillion, poultry brooder, laying houses, and plant science farm and research plots. Poultry, dairy cattle, beef cattle, sheep, and swine representing several breeds are maintained for instructional and research purposes.

The College of Agriculture and Agricultural Experiment Station at Moscow operate more than 1100 acres of land. Additional acreages of land, including 1380 acres in other parts of the state, are available and are used for instructional purposes in breeding, production, and applying scientific principles to all fields of agriculture.

Degrees and Curricula Offered

Undergraduate. Baccalaureate degrees and curricula offered by this college are the Bachelor of Science in General Agriculture, Bachelor of Science in Agricultural Education, Bachelor of Science in Agricultural Economics (majors in agribusiness, agricultural economics, natural resources development, and rural and community development), Bachelor of Science in Agricultural Mechanization, Bachelor of Science in Animal Industries (majors in agribusiness, animal sciences, and range livestock management), Bachelor of Science in Bacteriology, Bachelor of Science in Entomology, Bachelor of Science in Plant Protection, Bachelor of Science in Plant Science (majors in plant science, crop management, and landscape horticulture), Bachelor of Science in Soil Science (majors in agribusiness and soil science), and Bachelor of Science in Veterinary Science. Also, a program in food science is offered in cooperation with Oregon State University (the degree is granted by that institution). See the section headed "Major Curricula" further on in this catalog section for the programs of studies leading to these degrees.

Graduate. Graduate study leading to the degree of Master of Science is offered in agricultural economics, agricultural education, animal sciences, bacteriology, biochemistry, entomology, plant science, soil science, and veterinary science. Graduate study leading to the degree of Doctor of Philosophy is offered in bacteriology, biochemistry, entomology, plant science, and soil science. Students must fulfill the requirements of the Graduate School and the departments in which they study. Consult the graduate catalog for further information.

General Requirements for Graduation

University Requirements. See general regulation "J" in part 3 for requirements all students in the university must meet.

General College Requirements. Each candidate for a baccalaureate degree in the College of Agriculture must complete a minimum of 132 semester credits (136 for plant protection), in-

cluding the specific departmental requirements listed in the major curriculum and the following general college requirements: (a) advanced writing, 3 credits; (b) speech, 2 credits; (c) mathematics, 4 credits; (d) chemistry, 4 credits; (e) life sciences, which must include Biol 201, 8 credits; (f) humanities and social sciences, including at least 5 credits in each area, 14 credits; and (g) courses in the major, 20 credits recommended. A list of approved courses to satisfy these college requirements is available through departmental advisers. The same course may be used to satisfy only one requirement.

Major Curricula

The specific requirements for the several undergraduate majors are listed below. 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.

GENERAL AGRICULTURE (B.S.Gen.Ag.)

Designed for students interested in a broad education with emphasis on agriculture. The flexibility permitted enables students to get the education needed in a general farming operation. 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 should be informed of the requirements in other majors and plan course selections to avoid loss of time if they transfer to another major.

General agriculture students may choose an adviser in any department in the college.

Course	Credits
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Advanced writing electives	3
Agriculture electives (must include courses in at least four departments)	50
Biology (to include Biol 201, Intro to Life Sciences)	8
Chemistry electives	8
Electives in agricultural economics, business, and accounting	15
Mathematics electives	4
Physical education activities	2
Social sciences and humanities electives	14
Speech electives	2
Electives to total 132 cr for the degree	—

AGRIBUSINESS (B.S.Ag.Econ.)

Designed to prepare students for employment as managers, administrators, or managerial-related positions in agribusiness. Examples of such employment are finance, management, marketing, sales management, administration, public and industrial relations, production management, economic and statistical analysis, operations research and reporting, managerial accounting, and transportation analysis. This curriculum is administered by the Department of Agricultural Economics.

Course	Credits
Acctg 201 Prin of Accounting	3
Acctg 202 Managerial Accounting	3
Acctg 301 Inter Acctg, *or* 385 Costs: Concepts & Methods	3
Ag 321 Biometry, *or* Bus 231 Statistics	3-4
AgEc 101 Ag & its Soc & Econ Environ	3
AgEc 208 Prin of Farm & Ranch Mgmt	3
AgEc 219 Marketing Farm Products	3
AgEc 356 Agricultural Programs & Policies	3
AgEc 391 Agricultural Business Mgmt	3
AgEc 414 Anal Tech in Agribusiness & Econ	3
Biol 201 Intro to Life Sciences	4
Bus 365 Business Law	3
Bus 413 Human Relations in Business	3
Econ 251-252 Prin of Economics	6
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Eng 313 Business Writing, *or* 317 Tech & Engr Report Writing	3
Sp 131 Fundamentals of Speech	2
Agriculture electives (any courses in the College of Agriculture)	12
Agricultural economics electives	3
Chemistry electives	4
Computer science electives (e.g., Engr 131)	2
Life sciences electives	4
Mathematics electives (a minimum of Math 112)	4
Physical education activities	2
Social science and humanities electives	14
Electives in agricultural economics, economics, business, or accounting	6
Electives to total 132 cr for the degree	—

AGRIBUSINESS (B.S.An.Ind.)

Designed for students desiring to enter any of the various businesses associated with beef, dairy, meats, poultry, sheep, or swine industries. This curriculum is administered by the Department of Animal Industries.

Course	Credits
Acctg 201 Prin of Acctg	3
Acctg 202 Managerial Acctg	3
Ag 321 Biometry, *or* Bus 231 Statistics	3-4
Anl 205 Animal & Avian Nutrition	3
Anl 222 Livestock Breeding & Reprod	3
Anl 263 Intro to Meat Sci, *or* 303 Live Animal Selection & Carcass Eval	3
Anl 450 Proseminar	1
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Eng 313 Business Writing	3
Sp 131 Fundamentals of Speech	2
Agricultural economics electives (to include AgEc 208, 219, 353, and 391)	15
Animal industries electives	4
Chemistry electives (to include Chem 103, Intro to Chemistry)	7
Electives in accounting, business, and economics to include Econ 251-252, Prin of Econ)	15
Life sciences electives (to include Biol 201, Intro to Life Sciences)	8
Mathematics electives	4
Physical education activities	2
Social sciences and humanities electives (a minimum of 5 credits in each area)	14
Two production courses chosen from the following: Anl 224, 321, ID322, 323, 326, 328	6
Electives to total 132 cr for the degree	—

AGRIBUSINESS (B.S.SoilSc.)

Designed to meet the needs of students who are preparing for a career in agricultural business enterprises. Additional courses in agricultural economics and business are required with a corresponding reduction in other courses. This curriculum is administered by the Department of Plant and Soil Sciences.

Course	Credits
Acctg 201 Prin of Accounting	3
Ag 321 Biometry, *or* Bus 231 Statistics	3-4
AgEc 101 Ag & its Soc & Econ Environ	3

(Continued on next page)

AgEc 208 Prin of Farm & Ranch Mgmt	3
AgEc 219 Marketing Farm Products	3
AgEc 391 Agricultural Business Mgmt	3
AgEc 451 Land Resource Economics	3
Biol 201 Intro to Life Sciences	4
Biol 203 General Botany	4
Econ 251-252 Prin of Economics	6
Engr 131 Digital Computer Prog	1
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Soils 205, 206 General Soils & Lab	4
Soils 435 Soil Physics	3
Soils 446 Soil Fertility	3
Soils 454 Soil Dev & Classification	3
Advanced writing electives	3
Agricultural electives	12
Chemistry electives	8
Electives in accounting, business, and economics	6
Humanities and social science electives	14
Life science electives	4
Mathematics electives	4
Physical education activities	2
Soils electives	7
Speech electives	2
Electives to total 132 cr for the degree	—

AGRICULTURAL ECONOMICS (B.S.Ag.Econ.)

Designed to provide students with the theoretical aspects which lie behind decisions concerning agricultural production, marketing, use of resources, pricing, and policy. Students desiring to become professional economists usually choose this curriculum in preparation for continued study at the graduate level. Supplemental courses are offered in statistics, effects of governmental policy, rural appraisal, and related topics.

Course	Credits
Acctg 201 Prin of Accounting	3
Acctg 202 Managerial Acctg	3
Ag 321 Biometry, *or* Bus 231 Statistics	3-4
AgEc 101 Ag & its Soc & Econ Environ	3
AgEc 208 Prin of Farm & Ranch Management	3
AgEc 219 Marketing Farm Products	3
AgEc 353 Agricultural Prices	3
AgEc 356 Agricultural Programs & Policies	3
AgEc 481 Agricultural Market Analysis	3
AgEc 493 Agricultural Production Economics	3
Biol 201 Intro to Life Sciences	4
Econ 251-252 Prin of Economics	6
Econ 321 Inter Microeconomic Analysis	3
Econ 372 Inter Macroeconomic Analysis	3
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Eng 313 Business Writing, *or* 317 Tech & Engr Report Writing	3
Math 180 Analytic Geometry & Calculus I	4
Sp 131 Fundamentals of Speech	2
Agriculture electives (any courses in the College of Agriculture)	12
Agricultural economics electives	3
Chemistry electives	4
Computer science electives (e.g., Engr 131)	2
Economics electives (two courses)	6
Life science electives	4
Physical education activities	2
Social science and humanities electives	14
Electives to total 132 cr for the degree	—

AGRICULTURAL EDUCATION (B.S.Ag.Ed.)

This curriculum is approved by the State Board for Vocational Education for the preparation of high school vocational agriculture teachers. Graduates who have completed at least twenty credits in agricultural education, and who meet the state certificate requirements for a Standard Secondary Teaching Certificate, are eligible to teach vocational agriculture in Idaho. In addition, government and business agencies that seek persons with training in the general field of agriculture provide employment opportunities for graduates of this curriculum.

Course	Credits
AgEd 351 Prin of Vocational Ed	2
AgEd 352 Beginning Methods	2
AgEd 453 Adv Meth & Curricula	3
AgEd 454 Meth of Teaching Farm Shop	2
AgEd 457 Adult Ag Ed Methods	2
AgEd 458 Supervision of FFA	2
AgEd 460 Practice Teaching	9
AgEd 470 Proseminar	1
AgMech 101 Oxy-Actylene Welding	2
AgMech 107 Arc Welding	2
AgMech 302-303 Ag Ed Shop I-II	8
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Eng 313 Business Writing, *or* 317 Tech & Engr Report Writing	3
Math 111 *or* 112 Fund of Mathematics	4
Agricultural electives, including a minimum of 6 cr in agricultural economics, 6 cr in animal industries, 6 cr in plant science, and 4 cr in soils	33
Chemistry electives	4
Life science electives (to include Biol 201)	8
Physical education activities	2
Speech electives	2
Social science or humanities electives (to include Ed 201 *or* Ed 468, Psych 100, and Psych 205)	14
Electives to total 132 cr for the degree	—

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 Engineers Council for Professional Development. The requirements for graduation are listed with other engineering curricula in the College of Engineering section.

AGRICULTURAL MECHANIZATION (B.S.Ag.Mech.)

Designed to prepare students for careers in agriculture and agriculturally related businesses which 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 Agricultural Engineering.

Course	Credits
Acctg 201 Prin of Accounting	3
Acctg 202 Managerial Accounting	3
AgEc 208 Prin of Farm & Ranch Mgmt	3
AgEc 391 Agricultural Business Mgmt	3
AgMech 112 Engr Applications in Ag	3
AgMech 115 Graphical Representations	1
AgMech 200 Seminar	1
AgMech 305 Ag Machinery & Equip	3
AgMech 306 Ag Struc & Environ Systems	3
AgMech 309 Gas Engines & Tractors	3
AgMech 312 Electric Power Application	3
AgMech 315 Irrigation & Drainage	3
Bus 365 Business Law	3
CE 112 Elementary Surveying	2
Econ 251 Principles of Economics	3
Engr 131 Digital Computer Prog	2
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Math 111-112 Fund of Mathematics	8
PlSc 102 Plant Sciences in Ag	3
Soils 205, 206 General Soils & Lab	4
Advanced writing electives	3
Agricultural electives	13
Business electives	3
Chemistry electives	4
Electives from major field	5
Humanities and social science electives	14
Life sciences electives (to include Biol 201)	8
Physical education activities	2
Speech electives	2
Electives to total 132 cr for the degree	—

ANIMAL SCIENCES (B.S.An.Ind.)

Designed to prepare the student for a career in any phase of animal industries (livestock, dairy, poultry, meats). Emphasis is placed on providing a sound scientific background with concentration in the student's primary area of interest. It is designed to meet requirements of students interested in extension and research work and for the student who may decide to pursue graduate work in animal industries. This curriculum is administered by the Department of Animal Industries.

Course	Credits
Ag 321 Biometry	3
Anl 263 Intro to Meat Sci, *or* 303 Live Animal Selection & Carcass Eval	3
Anl 305 Principles of Nutrition	3
Anl 306 Applied Animal Nutrition	4
Anl 422 Animal Breeding	3
Anl 450 Proseminar	1
Anl 451 Endocrine Phys, *or* 452 Phys of Reprod & Lactation	3
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Eng 313 Business Writing, *or* 317 Tech & Engr Report Writing	3
Genet 314 General Genetics	3
Sp 131 Fundamentals of Speech	2
Chemistry electives (to include Chem 111, Prin of Chem, *and* Chem 112, Inorg Chem & Qual Anal)	11
Life sciences electives (to include Biol 201, Intro to Life Sci, and Biol 202, Gen Zool, *or* Biol 203, Gen Bot)	15
Mathematics electives	8
One production course chosen from Anl 224, 321, 322, 323, or 328	3
Physical education activities	2
Social science and humanities electives (a minimum of 5 credits in each area)	14
Electives to total 132 cr for the degree	—

BACTERIOLOGY (B.S.Bact.)

Designed for students who desire professional careers in basic and applied aspects of environmental bacteriology (terrestrial, aquatic, food, industrial). This curriculum stresses microbial ecology in terms of energy flow in natural systems and is administered by the Department of Bacteriology and Biochemistry.

Course	Credits
Ag 321 Biometry	3
Bact 250 General Bacteriology	4
Bact 304, 305 Pathogenic Bact & Lab	5
Bact 400 Seminar	2
Bact 402 Food & Applied Microbiology	4
Bact 425 Soil & Aquatic Microbiology	3
Bact 499 Directed Study	3
Biol 201 Intro to Life Sciences	4
Biol 202 Gen Zool, *or* 203 Gen Bot	4
Chem 111 Prin of Chemistry	4
Chem 112 Inorganic Chem & Qual Analysis	5
Chem 253 Quantitative Analysis	5
Chem 277, 278 Organic Chem I & Lab	4
Chem 372, 374 Organic Chem II & Lab	4
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Eng 317 Tech & Engr Report Writing	3
Math 111-112 Fund of Mathematics	8
Phys 113-114 General Physics	6
Phys 115-116 General Physics Lab	2
Sp 131 Fundamentals of Speech	2
Bacteriology or chemistry electives	12
Humanities and social sciences electives	14
Physical education activities	2
Electives to total 132 cr for the degree	—
Courses strongly recommended:	
Bact 409 Immunology	3
Bact 410 Immunology Laboratory	2
Biochem 205 Gen Biochemistry, *or* Chem 480 Elements of Biochemistry	3-4
Biol 331 General Ecology	3
Math 180 Anal Geometry & Calculus	4

Note: For students who wish to enter a school of veterinary medicine, it is possible to obtain the B.S.Bact. degree by substituting Biochem 205 for Chem 253 and by deleting Bact 400, 402, and 425. Under this plan VS 371 and 474 are required courses and Anl 305, 451, 452, VS 481, and Zool 323 are strongly recommended.

BIOCHEMISTRY

Students interested in majoring in biochemistry are advised by members of the biochemistry faculty but should enroll in the general chemistry (B.S.) or professional chemistry (B.S.) curriculum in the College of Letters and Science. In addition to courses indicated in the chemistry curriculum, students, in consultation with their adviser will take courses in biological sciences.

CROP MANAGEMENT (B.S.Pl.Sc.)

Designed to prepare students for careers in applied fields of crop management. These would include technical farm managers, extension agents, and a wide variety of jobs in agricultural industries. This curriculum is administered by the Department of Plant and Soil Sciences.

Course	Credits
Acctg 395 Fund of Accounting	4
AgEc 208 Prin of Farm & Ranch Mgmt	3
AgEc 219 Marketing Farm Products	3
AgEc 391 Agricultural Business Mgmt	3
AgMech 112 Engr Application in Ag	3
AgMech 315 Irrigation & Drainage	3
Anl 109 Prin of Animal Science	3
Biochem 205 General Biochemistry	4
Biol 201 Intro to Life Sciences	4
Biol 203 General Botany	4
Chem 103 Intro to Chemistry, *or* 111 Prin of Chemistry	4
Chem 275 Carbon Compounds, *or* 112 Inorganic Chem & Qualitative Anal	3-5
Econ 251 Principles of Economics	3
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Ent 322 Economic Entomology	3
Genet 314 General Genetics	3
PlSc 102 Plant Sciences in Agriculture	3
PlSc 303 Prin of Plant Pathology	3
PlSc 308 Forage Crops	3
PlSc 338 Weed Control	3
PlSc 407 Field Crop Production	3
PlSc 461 Pomology	3
PlSc 463 Olericulture	3
Soils 205, 206 General Soils & Lab	4
Advanced writing electives	3
Agricultural electives	12
Humanities and social science electives	14
Life science electives	7
Mathematics electives	4
Physical education activities	2
Speech electives	2
Electives to total 132 cr for the degree	—

ENTOMOLOGY (B.S.Ent.)

Designed for students who desire professional careers in the basic and applied fields of entomology (insect taxonomy, ecology, physiology, and agricultural, aquatic, and forest entomology).

Course	Credits
Ag 321 Biometry	3
Bact 250 General Bacteriology	4
Biol 201 Intro to Life Sciences	4
Biol 202 General Zoology	4
Biol 203 General Botany	4
Biol 331 General Ecology	3
Chem 111 Prin of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal	5
Chem 275 Carbon Compounds, *or* 277 Organic Chem I	3

(Continued on next page)

Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Eng 317 Tech & Engr Report Writing	3
Ent 211 General Entomology	4
Ent 322 Economic Entomology	3
Ent 342 Insect Identification	4
Ent 484 Insect Anatomy & Physiology	4
PlSc 303 Prin of Plant Pathology	3
Sp 131 Fundamentals of Speech	2
Entomology electives	5
Life science electives	11
Mathematics electives	4
Physical education activities	2
Physics electives	3
Social science and humanities electives	14
Electives to total 132 cr for the degree	—

FOOD SCIENCE

This program is offered in cooperation with Oregon State University, the degree-granting institution. Idaho resident students will *not* be charged out-of-state tuition by Oregon State University. Scientific and technological training is provided in the principles involved in the procurement, processing, preservation, and distribution of foods and food products. Emphasis is placed on providing a sound background to prepare students for a wide variety of positions in industry, governmental agencies, colleges, and universities. At the University of Idaho this curriculum is administered by the Department of Bacteriology and Biochemistry.

Course	Credits
Ag 321 Biometry	3
Chem 111 Prin of Chemistry	4
Chem 112 Inorganic Chem & Qual Analysis	5
Chem 253 Quantitative Analysis	5
Chem 277, 278 Organic Chem I & Lab	4
Chem 372 Organic Chem II	3
Eng 103 Basic Skills for Writing	3
Eng 317 Tech & Engr Report Writing	3
H&S 288 First Aid	2
Math 111-112 Fund of Mathematics	8
Math 180 Analytic Geom & Calculus I	4
Phys 113-114 General Physics	6
Sp 131 Fundamentals of Speech	2
Physical education activities	2

LANDSCAPE HORTICULTURE (B.S.Pl.Sc.)

This curriculum is designed to prepare students for professional careers, the management and operation of commercial nurseries, greenhouses, recreational parks, and related industries. Opportunities are also available for graduate study which often qualifies individuals for careers in teaching, research, or extension.

Course	Credits
AgMech 315 Irrigation and Drainage	3
Arch 288 Plant Materials	3
Arch 388 Plant Materials	3
Arch 488 Park & Recreation Planning	2
Biochem 205 General Biochemistry	4
Biol 201 Intro to the Life Sciences	4
Biol 203 General Botany	4
Bot 241 Systematic Botany	3
Bot 311 Plant Physiology	3
Chem 103 Intro to Chemistry	4
Chem 275 Carbon Compounds	3
Chem 278 Organic Chemistry I: Lab	1
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Ent 322 Economic Entomology	3
Genet 314 General Genetics	3
PlSc 102 Plant Sciences in Agriculture	3
PlSc 201 Turfgrass Science and Culture	2
PlSc 204 Prop & Culture of Ornamental Plants	3
PlSc 303 Principles of Plant Pathology	3
PlSc 338 Weed Control	3
PlSc 464 Ornamental Plants and Their Management	3
Soils 205, 206 General Soils and Laboratory	4
Advanced writing electives	3
Agricultural electives	16
Business and accounting electives	6
Humanities and social science electives	14
Mathematics electives	4
Physical education activities	2
Speech electives	2
Electives to total 132 cr for the degree	—

NATURAL RESOURCES DEVELOPMENT (B.S.Ag.Econ.)

Designed to provide the student with the basic natural and social sciences along with the economic theory and analytic techniques necessary for analyzing various alternative uses of our natural resources. Majors in natural resource development will prepare for employment on planning commissions. Forest Service, Bureau of Land Management, Soil Conservation Service, Bureau of Reclamation, U.S. Corps of Engineers, and other public and private agencies involved with natural resource development activities. This curriculum is administered by the Department of Agricultural Economics.

Course	Credits
Ag 321 Biometry, *or* Bus 231 Statistics	3-4
AgEc 101 Ag & its Soc & Econ Environ	3
AgEc 208 Prin of Farm & Ranch Mgmt	3
AgEc 356 Ag Programs & Policies	3
AgEc 361 Farm & Natural Resource Appr	3
AgEc 451 Land Resource Economics	3
AgEc 493 Ag Production Economics	3
Biol 201 Intro to Life Sciences	4
Econ 251-252 Prin of Economics	6
Econ 321 Inter Microeconomic Anal	3
Econ 485 Welfare & Environmental Econ	3
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Eng 313 Business Writing, *or* 317 Tech & Engr Report Writing	3
Math 180 Anal Geometry & Calculus I	4
Soc 110 Intro to Sociology	3
Soc 310 Rural Sociology	3
Sp 131 Fundamentals of Speech	2
Agriculture electives (any courses in the College of Agriculture)	12
Agricultural economics electives	3
Approved electives in forestry, mining, and engineering (a list of the courses acceptable in each area may be obtained from the dean's office)	12
Chemistry electives	4
Life science electives	4
Physical education activities	2
Social science and humanities electives	14
Electives to total 132 cr for the degree	—

PLANT PROTECTION (B.S.Pl.Prot.)

Designed to prepare students for professional careers in the field of plant protection. This program integrates the fields of entomology, plant pathology, and weed science to produce individuals with broader concepts and understanding of our agricultural, food, and environmental problems. Students so trained should have wider choices in selecting careers. This curriculum is administered by the Department of Plant and Soil Sciences and the Department of Entomology.

Course	Credits
Ag 203 Environmental Pollution	3
Ag 499 Directed Study: Plant Protection	4
AgEc 101 Ag & its Soc & Econ Environ	3
AgMech 112 Engr Applications in Ag	3
Bact 250 General Bacteriology	4
Biol 201 Intro to Life Sciences	4
Biol 202 General Zoology	4
Biol 203 General Botany	4
Biol 331 General Ecology	3
Bot 241 Systematic Botany	3
Bot 432 Plant Ecology	3
Bus 365 Business Law	3
Chem 111 Prin of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal	5
Chem 277, 372 Organic Chem I, II	6
Eng 103 Basic Skills for Writing	3

Eng 104 Essay Writing	3
Ent 211 General Entomology	4
Ent 322 Economic Entomology	3
PlSc 303 Prin of Plant Pathology	3
PlSc 338 Weed Control	3
PlSc 404 Plant Disease Ident & Control	3
PlSc 405 Biology of Weeds	3
Soils 205 General Soils	3
Humanities and social science electives	14
Mathematics electives	4
Physical education activities	2
Speech electives	2
Electives to total 136 cr for the degree	—

PLANT SCIENCE (B.S.Pl.Sc.)

Designed to prepare students for professional careers in basic agricultural industries including production, processing, research, and service. Opportunities are available as farm managers, farm advisers, extension agents, and for graduate study. This curriculum is administered by the Department of Plant and Soil Sciences.

Course	Credits
AgMech 315 Irrigation & Drainage	3
Bact 250 General Bacteriology	4
Bot 311 Plant Physiology	3
Chem 111 Prin of Chemistry	4
Chem 112 Inorganic Chem & Qual Analysis	5
Chem 277 Organic Chemistry I	3
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Ent 322 Economic Entomology	3
Genet 314 General Genetics	3
PlSc 102 Plant Sci in Agriculture	3
PlSc 303 Prin of Plant Pathology	3
PlSc 338 Weed Control	3
PlSc 401 Crop Physiology	3
PlSc 404 Plant Disease Ident & Control	3
PlSc 407 Field Crop Production	3
PlSc 461 Pomology	3
PlSc 463 Olericulture	3
Soils 205, 206 General Soils & Lab	4
Soils 446 Soil Fertility	3
Advanced writing electives	3
Agricultural electives	12
Humanities and social science electives	14
Life science electives	4
Mathematics electives	4
Physical education activities	2
Speech electives	2
Electives to total 132 cr for the degree	—

RANGE-LIVESTOCK MANAGEMENT (B.S.An.Ind.)

Designed for students interested in management and operation of range and pasture beef cattle or sheep operations. It is also for those interested in employment in the Cooperative Extension Service as county agricultural agents and livestock specialists in livestock-producing areas. This curriculum is administered by the Department of Animal Industries.

Course	Credits
Ag 321 Biometry	3
AgMech 315 Irrigation & Drainage	2-3
Anl 303 Live Animal Sel & Carcass Eval	3
Anl 305 Principles of Nutrition	3
Anl 306 Applied Animal Nutrition	4
Anl 321 Beef Cattle Science, *or* 322 Sheep Science	3
Anl 422 Animal Breeding	3
Anl 450 Proseminar	1
Anl 452 Physiology of Reprod & Lactation	3
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Eng 317 Tech & Engr Report Writing	3
FWR 351 Elements of Range Mgmt	3
FWR 452 Range Communities	3
FWR 453 Range Methods & Techniques	3
Genet 314 General Genetics	3
PlSc 308 Forage Crops	3
Soils 205, 206 General Soils & Lab	4
Sp 131 Fundamentals of Speech	2
Chemistry electives (to include Chem 111 and 112)	11
Life science electives (to include Biol 201, 203, and Bot 241)	15
Mathematics electives	8
Physical education activities	2
Social science and humanities electives (a minimum of 5 cr in each area)	14
Electives to total 132 cr for the degree	—

RURAL AND COMMUNITY DEVELOPMENT (B.S.Ag.Econ.)

Designed to provide training in economic and social techniques that deal with development problems in rural areas. This curriculum will prepare students pursuing professional careers as community and rural planners, public administrators, community resource development specialists, and economic developers at the local, state, or federal levels of government. Students under this program are encouraged to draw on a variety of courses in such disciplines as political science, sociology, and anthropology. This curriculum is administered by the Department of Agricultural Economics.

Course	Credits
Ag 321 Biometry, *or* Bus 231 Statistics	3-4
AgEc 101 Ag & its Soc & Econ Environ	3
AgEc 208 Prin of Farm & Ranch Mgmt	3
AgEc 219 Marketing Farm Products	3
AgEc 332 Economics of Agricultural Dev	3
AgEc 356 Ag Programs & Policies	3
AgEc 451 Land Resource Economics	3
Biol 201 Intro to Life Sciences	4
Econ 251-252 Prin of Economics	6
Econ 410 State & Local Govern Finance	3
Econ 430 Regional Economics	3
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Eng 313 Business Writing, *or* 317 Tech & Engr Report Writing	3
PolSc 101 American Government	3
PolSc 276 American Local Government	3
Soc 110 Intro to Sociology	3
Soc 310 Rural Sociology	3
Soc 312 Sociology of Organizations	3
Soc 321 The Community	3
Soc 412 Social Structure & Personality	3
Sp 131 Fundamentals of Speech	2
Agriculture electives (any courses in the College of Agriculture)	12
Agricultural economics electives	3
Chemistry electives	4
Life sciences electives	4
Mathematics electives (a minimum of Math 112)	4
Physical education activities	2
Social science and humanities electives	14
Electives to total 132 cr for the degree	—

SOIL SCIENCE (B.S.Soil Sc.)

Designed to meet the needs of students preparing for professional or academic careers in soil sciences. Emphasis is placed on basic sciences in preparation for a wide variety of jobs in industry or government and for graduate study. This curriculum is administered by the Department of Plant and Soil Sciences.

Course	Credits
Bact 250 General Bacteriology	4
Biol 201 Intro to Life Sciences	4
Biol 203 General Botany	4
Bot 311 Plant Physiology	3
Chem 111 Prin of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal	5
Chem 253 Quantitative Analysis	5
Chem 275 Carbon Compounds, *or* 277 Organic Chemistry I	3

(Continued on next page)

Engr 131 Digital Computer Prog	1
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Geol 101, 102 Physical Geology & Lab	4
Math 111-112 Fund of Math, *or* 180 Analytic Geometry & Calculus I	4-8
Phys 113-114 General Physics	6
Soils 205, 206 General Soils & Lab	4
Soils 412 Soil Chemistry	4
Soils 425 Soil & Aquatic Microbiology	3
Soils 435 Soil Physics	3
Soils 446 Soil Fertility	3
Soils 454 Soil Develop & Class	3
Advanced writing electives	3
Agricultural electives	12
Humanities and social science electives	14
Life science electives	4
Physical education activities	2
Speech electives	2
Electives to total 132 cr for the degree	—

VETERINARY SCIENCE (B.S.Vet.Sc.)

Students preparing for admission to a college of veterinary medicine elect this major. If, after successful completion of ninety-nine credits, the student is admitted to a recognized college of veterinary medicine, the successful completion of the first year of study at the college of veterinary medicine (at least 33 credits in approved courses) will constitute the senior year toward the degree of Bachelor of Science in Veterinary Science at the University of Idaho. Students under this option must complete their junior year (at least 33 credits) in residence on the Moscow campus.

Course	Credits
Bact 250 General Bacteriology	4
Biochem 205 General Biochemistry	4
Biol 201 Intro to Life Sciences	4
Biol 202 General Zoology	4
Chem 111 Prin of Chemistry	4
Chem 112 Inorganic Chem & Qual Analysis	5
Chem 275 Carbon Compounds, *or* 277, 278 Organic Chem I and Lab	3-4
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Math 111 Fundamentals of Mathematics, *or* 140 College Algebra, *or* 180 Analytic Geom & Calculus I	3-4
Phys 113-114 General Physics	6
VS 200 Seminar	1
Advanced writing electives	3
Agriculture electives	18-20
Approved electives (first year of veterinary medicine)	31
Humanities and social science electives (a minimum of 6 credits in each area)	14
Physical education activities	2
Speech electives	2
Electives to total 132 cr for the degree	—

College of Business and Economics

Gerald R. Cleveland, Dean (211-A Admin. Bldg.); Dolores A. Sanchez, Secretary of the College Faculty.

THE COLLEGE WAS ESTABLISHED as a separate professional division of the university in 1925. Long known as the College of Business Administration, the name was changed to the College of Business and Economics in 1969. Its objective is to provide training for young men and women who are preparing for careers in business. Through curriculum changes, the college recognizes forces in the modern business world, such as increased awareness of human factors, need for long-range planning, rapid technological change, and need for flexibility.

The College of Business and Economics provides a sound background in basic principles and in research possibilities which will help graduates as they advance into positions of responsibility. As a part of a state-supported university, founded to train better citizens, the college also aims to give its students an appreciation of the social importance and responsibilities of businessmen.

In addition to instruction in the fundamental principles of business, the College of Business and Economics also offers specific training in the techniques of business where this is feasible; as, for example, in accounting, business and economic research techniques, and secretarial practice. In common with other university colleges of business, however, the curricula avoid extremely specialized instruction in business practices. Because such practices vary greatly among business firms and change rapidly, they are in most cases better learned on the job.

The University of Idaho has three major objectives: teaching, research, and service. Through the Center for Business Development and Research, the college is able to contribute to business development and to the advancement of knowledge about our state and its business activities. In addition, faculty members and students have the opportunity to engage in basic research. Modern computer facilities and data processing equipment keep the program ahead of changing business methods.

The college also provides faculty and counsel for continuing education in business matters throughout the state. In cooperation with other state agencies, courses in management and in specialized areas are made available.

Curricula and Degrees Offered

Undergraduate. Majors are offered leading to the degree of Bachelor of Science in Business in the fields of accounting, business and applied science, economics, finance, general business, management, marketing, and office administration. Detailed statements of the requirements for these majors are included in the departmental curricula at the conclusion of this section. A degree in business is an excellent background for entry into a college of law. In exceptional cases, students are admitted to a college of law without a degree. For further information, consult the College of Business and Economics.

Graduate. The Graduate School offers work toward the degrees of Master of Science and Master of Business Administration with majors available in business (M.B.A.) and in economics (M.S.). Students must fulfill the requirements of the Graduate School and of the department in which they study. Consult the catalog of the Graduate School for further information.

Standing of the College

Fully accredited by the Northwest Association of Secondary and Higher Schools, the College of Business and Economics keeps apace of developments in business training through various organizations and by constant consultation with Idaho businessmen. The quality of the program is attested to by the outstanding achievements of Idaho graduates in all fields of business throughout the nation.

General Requirements for Graduation

University Requirements. See general regulation "J" in part 3 for requirements which all students in the university must meet.

General College Requirements. Candidates for the degree of Bachelor of Science in Business must complete a total of 128 credits, including at least fifty-two credits in courses outside of the College of Business and Economics. Students registered in the college are required to achieve a minimum overall grade point average of 1.85 for the first two academic years before being permitted to fully pursue upper-division work. Specifically, this means that a student earning an overall average of less than 1.85 for a minimum of sixty credits may not register for more than one upper-division course (those numbered 300 and above) in any one semester until his or her cumulative grade point average is raised to this minimum level.

A. BUSINESS AND ECONOMICS CORE REQUIREMENTS.

Course	Credits
Acctg 201 Prin of Accounting	3
Acctg 202 Managerial Accounting	3

(Continued on next page)

Facing page: In 1923, the university banqueted Idaho Violet Posch Ormsby, the first cow in the state to produce 1007 pounds of butterfat in a year.

Bus 133 Intro to Computer Information Systems, *or* Engr 131 Digital Computer Programming, *or* Bus 333 Intro to COBOL	2
Bus 221 Marketing	3
Bus 231 Statistics	4
Bus 301 Financial Management (acctg majors may substitute Bus 406)	3
Bus 311 Intro to Management Theory	3
Bus 312 Industrial Management	3
Bus 365 Business Law	3
Bus 414 Business Policy	3
Econ 251-252 Prin of Economics (or equiv)	6
Economics electives (upper-division) (acctg majors are required to take Econ 321 as part of this elective)	6
Additional business and economics courses to total fifty-two credits	—

B. COURSE WORK OUTSIDE OF COLLEGE OF BUSINESS AND ECONOMICS.

Course	Credits
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Eng 313 *or* 317 Business *or* Technical Writing	3
Math 111-112 Fund of Math, *or* 140 and 112 Coll Alg and Fund of Math, *or* 180 Anal Geom & Calc I	4-8
Sp 131 Fundamentals of Speech	2
Literature	6
Natural science (physical or biological science)	4
Physical education activities	2
Social science electives (select from anthropology, economic geography, history, philosophy, political science, psychology, or sociology)	6
Additional courses outside of the College of Business and Economics to total at least fifty-two credits (as many as 6 credits in lower-division economics courses may be counted in this total)	—

Curricula

The specific requirements for each major are listed below. Each student is assigned an adviser who assists in the planning of a program through the use of a check sheet; however, the student has the final responsibility for the completion of all requirements. Where business or economics electives are specified, courses numbered 300 or above are required. Students in the advanced Officer Education Program should use the free electives category to permit scheduling of the twelve credits required in such courses during the junior and senior years.

ACCOUNTING (B.S.Bus.)

This curriculum emphasizes cost accounting, corporation accounting, auditing, public accounting, and taxation. Required course work includes the general requirements, plus:

Course	Credits
Acctg 301-302 Interm Accounting	6
Acctg 385 Costs: Concepts & Methods	3
Acctg 401 Advanced Accounting	3
Acctg 483 Federal & State Taxes	3
Acctg 486 Costs: Analysis & Controls	3
Acctg 493 Auditing Theory	3
Bus 332 Quantitative Methods in Business	3
Bus 438 Intermediate Managerial Statistics	3
Bus 457 Nonparametric Statistics	1
Bus 466 Business Law	3

BUSINESS AND APPLIED SCIENCE (B.S.Bus.)

Because the university offers strong technical programs in agriculture, engineering, forestry, and mining, the College of Business and Economics is able to offer instruction in combination with them. The business and applied science major offers an opportunity to combine a major in business with study in one of the technical fields for students who plan to enter a field of business where complete technical preparation is not essential, but where some technical knowledge is highly desirable.

Required course work includes the general requirements, plus:

Course	Credits
Bus 312 Industrial Management	3
Bus 332 Quantitative Methods in Business	3
Accounting elective	3
*Approved technical electives in agriculture, engineering, forestry, or mining	18

*A list of the courses required in each area may be obtained from the dean of the College of Business and Economics.

BUSINESS EDUCATION (B.S.Bus.Ed.)

For this curriculum, see the College of Education section.

ECONOMICS (B.A. or B.S.)

For these curricula, see the College of Letters and Science section.

ECONOMICS (B.S.Bus.)

Students wishing to prepare 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 general college requirements, plus:

Course	Credits
Econ 321 Inter Microeconomic Analysis	3
Econ 372 Inter Macroeconomic Analysis	3
Additional upper-division credits in economics	12
Additional upper-division credits in social sciences (other than economics), geography, philosophy, or psychology, with not more than six credits in any one field. Credits in mathematics beyond the general college requirements will be accepted in satisfaction of this requirement	9

FINANCE (B.S.Bus.)

This curriculum is designed for students who wish to pursue a career in corporate finance, banking, investments, or insurance. The student may elect to concentrate in one of these areas of finance. Required course work includes the general requirements, plus:

Course	Credits
Bus 302 Finan Institutions & Credit	3
Bus 401 Investments	3
Bus 406 Prob in Financial Mgmt	3
Two courses selected from the following list	4
Bus 133 Intro to Computer Info Systems Bus 333 Intro to COBOL Engr 131 Digital Computer Programming	
Plus any four courses selected from the following list (courses which fulfill college or departmental requirements may also be used to fulfill this requirement)	12
Acctg 301 Intermediate Accounting Acctg 302 Intermediate Accounting Bus 332 Quant Methods in Business	

Facing page: graduating class in 1899.

Bus 403 Insurance
Bus 436 Bus & Econ Fluctuations
Bus 461 Real Estate
Econ 403 Money & Banking
Econ 409 Public Finance

GENERAL BUSINESS (B.S.Bus.)

Those students who prefer all-around preparation in business management to specialization in one field should elect this curriculum. The required course work includes the general requirements, plus:

Course	Credits
Bus 312 Industrial Management	3
Bus 332 Quantitative Methods in Business	3
Accounting elective	3

MANAGEMENT (B.S.Bus.)

Offered in recognition of the requirements of modern business for the development of more effective managerial skills, this program emphasizes the behavioral and quantitative aspects of the planning, organizing, coordinating, analyzing, and evaluating that is inherent in the administrative process. Required course work includes the general requirements, plus:

Course	Credits
Bus 312 Industrial Management	3
Bus 332 Quantitative Methods in Business	3
Bus 411 Organization Theory	3
Bus 413 Human Relations in Business	3
Bus 414 Business Policy	3
One of the following courses	3
Bus 412 Personnel Management	
Bus 439 Systems & Simulation	
Bus 441 Labor Relations	
Accounting elective	3

MARKETING (B.S.Bus.)

The student who is contemplating a career with consumer or industrial goods manufacturers, retail or wholesale distributors, advertising and marketing research organizations, and firms in real estate should elect this program. Certain modifications of this major may be arranged for students wishing to prepare for advertising. Required course work includes the general requirements, plus:

Course	Credits
Bus 312 Industrial Management	3
Bus 323 Principles of Advertising	3
Bus 332 Quantitative Methods in Bus	3
Bus 423 Retail Merchandising & Distri	3
Bus 425 Inter Marketing Mgmt	3
Bus 451 Marketing Problems	3
Bus 452 Marketing Research & Analysis	3
Accounting electives	3
Plus two courses selected from the following list	4
Bus 133 Intro to Computer Info Systems	
Bus 333 Intro to COBOL	
Engr 131 Digital Computer Programming	
Recommended electives:	
Bus 324 Sales Management	3
Bus 436 Bus & Econ Fluctuations	3

MARKETING: REAL ESTATE (B.S.Bus.)

Required course work includes the general requirements, plus:

Course	Credits
Bus 312 Industrial Management	3
Bus 323 Principles of Advertising	3
Bus 332 Quantitative Methods in Bus	3
Bus 452 Marketing Research & Analysis	3
Bus 461 Real Estate	3
Bus 462 Real Property Appraisal	3
AgEc 361 Farm & Nat Resource Appr	3
Accounting elective	3
Plus two courses selected from the following list	4
Bus 133 Intro to Computer Info Systems	
Bus 333 Intro to COBOL	
Engr 131 Digital Computer Programming	
Recommended electives:	
AgEc 451 Land Resource Econ	3
Arch 266 Materials & Methods	3
Geog 430 Urban Geography	3
PolSc 276 American Local Govt	3
Psych 100 Intro to Psychology	3
Soc 110 Intro to Sociology	3
Soc 310 Rural Sociology	3
Soc 311 Urban Sociology	3

OFFICE ADMINISTRATION (B.S.Bus.)

This curriculum is designed to equip the student to enter the field of business through secretarial work. Required course work includes the general requirements (with the exception of the upper-division electives in economics), plus:

Course	Credits
OAd 101-102-103 Typewriting I-II-III	6
OAd 115-116 Shorthand I-II	8
OAd 185 Machine Calculation	2
OAd 271-272 Shorthand III-IV	6
OAd 395-396 Secretarial Procedures	6
Business or economics electives	3
Plus two courses selected from the following list	4
Bus 133 Intro to Computer Info Systems	
Bus 333 Intro to COBOL	
Engr 131 Digital Computer Programming	

College of Education

Everett V. Samuelson, Dean (301 Educ. Bldg.); Thomas O. Bell, Associate Dean; Barbara Hopkins, Secretary of the College Faculty.

THE COLLEGE OF EDUCATION was organized as an independent unit of the university in 1920. It is the principal teacher-education division and consists of the Division of Health, Physical Education and Recreation, the Division of Teacher Education, and the Division of Vocational Teacher Education. Subject fields within these divisions include education, business education, guidance and counseling, health and safety, industrial education, library science, physical education, recreation, special education, and vocational teacher education.

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 assuring that persons applying for admission to a program of preparation for educational service are qualified by preparation and personal attributes for this important work. Once admitted, the student undertakes a program which has as its objective 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 made substantial preparation 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 of Education provides educational leadership for the people of Idaho, to the state's education system, and to the teaching profession through consulting services, participation in organizational activities, and research. Preparation is provided in all of the major areas of professional education as it exists today.

Standing of the College

The College of Education is fully accredited by the National Council for the Accreditation of Teacher Education, and 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 Secondary and Higher Schools.

Admission Requirements

Admission to the University. For a statement of general admission requirements, see part 2.

Transfer Students. Students who have attended college, whether at another institution or in another division of the university, prior to 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 Recreation, and Bachelor of Dance. See the section headed "Major Curricula" further on in this catalog section for the programs of studies leading to these degrees.

Graduate. The Graduate School offers work toward advanced degrees in several disciplines of the college. Students must fulfill the requirements of the Graduate School and of the department in which they intend to study. Consult the catalog of the Graduate School for further information.

In the College of Education, graduate programs include a special planned fifth year in teacher education, as well as work toward advanced degrees and certificates. Upon the successful completion of the appropriate programs of studies, the following degrees and certificates are conferred: Master of Science, Master of Education, Master of Arts in Teaching, Specialist in Education, Specialist in Educational Administration, Specialist in Guidance and Counseling, Specialist in School Psychology, Specialist in Special Education, Specialist in Vocational Education, Doctor of Education, and Doctor of Philosophy.

Studies at the master's level are offered in education, business education, distributive education, educational administration, elementary education, guidance and counseling, industrial education, physical education, secondary education, special education, and vocational education.

Sixth-year specialist programs are offered leading to professional certificates in education, educational administration, guidance and counseling, school psychology, special education, and vocational education.

Doctoral candidates majoring in education may concentrate in education, educational administration, elementary education, guidance and counseling, and secondary education.

Teacher Education Program

At the University of Idaho, the preparation of teachers is a cooperative enterprise between the College of Education and other divisions. Coordination is achieved through the Teacher Education Coordinating Committee, which is made up of representatives from the professional and

academic areas involved. However, the screening of all applicants for continuance in or admission to the Teacher Education Program 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 teaching have the option of completing their bachelor's degree in the College of Education (except for agricultural education, home economics education, and music education) or in the department of their subject major.

Teacher education students have two advisers: one from the subject-matter department and one from the College of Education. 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 the Teacher Education Program), the advisers are designated. They plan and approve a program of studies for the student. As long as the approved program is followed, only the student's college adviser is required to sign the registration cards. Changes in the program require the signatures of both advisers. Exceptions to this rule are students majoring in a subject-matter area in the College of Education, students in the Department of Agricultural Education, in the School of Home Economics, and in the School of Music, who have advisers in their subject-matter areas only.

Admission to the Teacher Education Program. Upon completion of the first semester of the sophomore year, or forty semester credits, all students in the College of Education and all students majoring in other divisions who plan to enter the Teacher Education Program must make application for admission to or continuance in the program. A standing committee of the College of Education reviews each applicant's total record and presents its recommendations to the dean. The approval of the dean of the College of Education is required for admission to or continuance in the program. Admission to the Teacher Education Program does not carry with it permission to enroll in senior practicum. Additional procedures and requirements apply as noted elsewhere in this section and as noted in the prerequisites to the specific courses in senior practicum.

Clinical Experience in Teacher Education

The clinical study of teaching and learning theory is given practical application through laboratory experience in both campus and field settings. Teacher trainees have early involvement with school pupils and experienced teachers through short-term laboratory components such as the "January experience," a two-week, full-time observation and participation for freshman elementary education majors in selected schools; semester laboratory components for all students in Ed 201, Introduction to Teaching; and semester campus or field laboratory components for special education majors. Additional clinical experience is provided students as they continue professional studies through simulated teaching situations on campus and through field laboratory components for students of methodology. Culminating clinical teaching experience is provided in the senior practicum or graduate internship.

Senior Practicum

Admission. For admission to senior practicum courses (Ed 430, 431, 432, 435, SpEd 480), each student must have satisfied the following requirements: (1) have been admitted to or continued in the Teacher Education Program; (2) have a grade point average of at least 2.25; (3) have satisfied the other prerequisites stated in the description of the particular practicum course for which he or she wishes to register; and (4) have applied for admission to senior practicum by December 1 of the school year prior to enrolling for the field experience. Consult the director of clinical experiences in teacher education for more specific information.

The Program. The senior practicum is done in cooperating public schools so that students may obtain experience under typical school conditions. Normally it is scheduled for half of a semester of full-time teaching in centers designated by the College of Education. Students should plan their schedules for the senior year so that half of a semester will be free for full-time enrollment in the practicum and the other half of the semester in accelerated courses.

Graduate Practicum and Internship in School Positions

Admission. Admission to the practicum and internship courses is conditioned upon acceptance in a graduate program and approval of the major professor and/or student's committee. Application for placement in the practicum or internship should be submitted by December 1 of the school year prior to enrolling for the field experience.

The Program. Graduate students are provided clincial 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 the four-year Teacher Education Program 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 master's or professional certificate program in guidance and counseling qualify for the Idaho Pupil Personnel Services Certificate. Students may qualify for the Idaho School Librarian Certificate by completing the requisite courses in library science.

Procedures. The college in which the student is enrolled initiates the application for teacher certification. The subject-matter adviser and the professional education adviser each sign the necessary forms and forward them 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 proper certification office. 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.

The College of Education reserves recommendations for certification to students who have completed four years of preparation and hold a bachelor's degree.

General Requirements for Graduation

University Requirements. See general regulation "J" in part 3 for the general university requirements for graduation.

College Requirements. All candidates for a baccalaureate degree in the College of Education must complete a total of 128 semester credits, of which at least thirty-six must be in upper-division courses. A minimum grade point average of at least 2.00 is required in all specified professional courses and in the major secondary-school teaching field. The following uniform course requirements apply to all undergraduate teacher education students in the college (see the major curriculum in recreation for the special requirements applicable to that program):

A. *GENERAL STUDIES (42 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 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. *English (12 credits),* including composition and literature.

2. *Social Science (9-12 credits),* including at least one course in American history or American government. Majors in special education and students preparing to teach at the secondary-school level must complete a minimum of nine credits in this area; students preparing to teach at the elementary-school level must complete a minimum of twelve.

3. *Science-Mathematics (12-14 credits),* including biological, earth, or physical science courses requiring laboratory work. Majors in special education and students preparing to teach at the secondary-school level must complete a minimum of twelve credits in laboratory science and/or mathematics; students preparing to teach at the elementary-school level are required to include Math 135-136, Number System and Its Structure, and eight additional credits from two or more areas of natural science.

B. *OTHER TEACHER EDUCATION REQUIREMENTS (25-26 credits):*

Course	Credits
Ed 201 Introduction to Teaching	2
Ed 314 Strategies for Teaching	2-3
Ed 415 Educational Psychology	3
*Ed 430 *or* 431 *or* 432 *or* SpEd 480 Practicum	9
Ed 445 Proseminar in Teaching	1
Ed 468 Contemporary Education	3
Psych 100 Introduction to Psychology	3
Psych 205 Developmental Psychology	3
Sp 131 Fundamentals of Speech, *or* 151 Voice, Diction and Oral Interpretation	2

*Students preparing to teach art or physical education in secondary schools may substitute three credits in Ed 435 for three of the nine credits in Ed 431.

Major Curricula

Students in the College of Education must complete a major curriculum which leads to a degree granted by the college (B.Dan., B.S.Ed., B.S.Bus.Ed., or B.S.Rec.). These major curricula (with the degree goal identified) are listed below.

Careful distinction should be made between a student's "major curriculum" and any additional "teaching majors" or "teaching minors" required. These supplementary teaching majors and minors are listed after this section.

AGRICULTURAL EDUCATION (B.S.Ag.)

For this curriculum, see the College of Agriculture section.

BUSINESS EDUCATION (B.S.Bus.Ed.)

This major is for students whose primary interest is in teaching basic business subjects and economics. Required course work includes the general requirements for students preparing to teach at the secondary level, plus:

Course	Credits
Acctg 201 Principles of Accounting	3
Acctg 202 Managerial Accounting	3
Bus 301 Financial Management	3
Bus 365 Business Law	3
BusEd 491-492 Teaching Bus Ed I-II	6

Econ 251-252 Principles of Economics 6
Eng 313 Business Writing 3
Geog 140 Economic Geography 3
OAd 103 Typewriting III (may be waived by examination) 2
OAd 185 Machine Calculation 2
One of the following sequences 6
- Acctg 301-302 Interm Acctg
- Bus 302 Financial Institutions & Credit and 401 Investments
- Bus 411 Organization Theory and 412 Personnel Management
- Econ 321 Interm Micro Analysis and 372 Interm Macro Analysis

Accounting, business, or econ electives 9

DANCE (B.Dan.)

The curriculum leading to the degree of Bachelor of Dance is designed to prepare students to be teachers of dance, as well as to perform and choreograph. Emphasis is on modern dance. Majors in this discipline satisfy the general university, college, and other course requirements by taking the following:

Course	Credits
Art 101 *or* 102 Survey of Art	2
Art 121 Creative Proc & Design, *or* ThA 108 Intro to Media	2
Dan 105 Dance—including Modern (through adv), 3 cr; Ballet (through interm), 2 cr; Ethnic (through interm), 2 cr; Square & Social, 1 cr; Jazz (through interm), 2 cr	10
Dan 112 Dance Techniques	2
Dan 113 Prob in Dance Composition	2
Dan 220 Rhythms for Children	2
Dan 320 Labanotation	1
Dan 321 Theory & Tech of Tchng Dance	2
Dan 325 Dance Production	2
Dan 383 Adv Comp, Rehearsal, & Perf	4
Dan 420 Dance Accompaniment	3
Dan 421 Dance History	3
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Eng 111-112 Lit of Western Civ	6
MusA 100 *or* 147 *and* 148 Piano and/or Voice	2
MusC 141 Musicianship & Mus Lit	3
MusH 321-322 Music in Western Civ	6
Phil 401 Philosophy of the Arts	3
PE 111 Fundamentals of Movement	2
PE 418 Physiology of Exercise	3
PE 419 Human Kinesiology	3
Psych 100 Intro to Psychology	3
Psych 205 *or* Ed 415 Devel *or* Ed Psych	3
Sp 131 Fund of Speech, *or* 151 Voice, Diction, & Oral Interpretation	2
ThA 105 Basics of Performance	2
ThA 163 Technical Production	3
ThA 264 Stage Lighting	3
Social science electives—including at least one course in American history or American government	9
Science and/or mathematics electives—including biological, earth, or physical science courses requiring lab work	12
Electives to complete 128 cr for the degree, including additional courses numbered 300 or above to complete the requirement for 36 cr at the upper-division level	—

Recommended electives:

Dance majors planning to qualify for the Idaho Standard Secondary-School Teaching Certificate should include the following courses among the electives to complete the total of 128 cr for the degree:

Ed 201 Intro to Teaching 2
Ed 314 Strategies for Teaching 2-3
Ed 431 Practicum (3 cr in Ed 435 may be substituted for 3 of the 9 cr in Ed 431) 9
Ed 445 Proseminar in Teaching 1
Ed 468 Contemporary Education 3

DISTRIBUTIVE EDUCATION (B.S.Bus.Ed.)

Students electing this major should consult the distributive education adviser concerning state requirements for the vocational education certificate. Required course work includes the general requirements for the student preparing to teach at the secondary level, plus:

Course	Credits
Acctg 201 Principles of Accounting	3
Bus 221 Marketing	3
Bus 323 Principles of Advertising	3
Bus 324 Sales Management	3
Bus 423 Retail Merchandising & Distr	3
BusEd 493 Teaching Distributive Ed	3
BusEd 497 Coordination Techniques	3
Econ 251 Principles of Economics	3
VocEd 322 Vocational Guidance	3
VocEd 351 Principles of Vocational Ed	2
Voc Ed 461 Occupational & Job Analysis	3

Plus the completion of a 20-credit teaching minor, or the following:

Additional requirements for a sixty-credit concentration

Econ 252 Principles of Economics 3
Eng 313 Business Writing 3
VocEd 200 Seminar, *or* 499 Directed Study 3
VocEd 481 Foundations of Voc Ed 2
Electives (approved by distributive education teacher educator) 9

ELEMENTARY EDUCATION (B.S.Ed.)

Required course work includes the general requirements for students preparing to teach at the elementary level, plus:

Course	Credits
Ed 320 Prim Lang Arts Meth, *or* 322 Interm Lang Arts Meth	3
Ed 326 Elem School Mathematics Ed	3
Ed 421 Elem School Soc Studies Meth	2
Ed 444 Elem School Science Meth	2
Music and/or art electives (not methods courses)	3

Plus five credits from among the following:

Ed 275 Elem School Art Meth 2
Ed 434 Children's Literature 3
H&S 316 Elem School Health Mat 2
MusT 381 (Ed 381) Elem Sch Mus Meth 3
PE 252 Elem School Phys Education 2

And the satisfactory completion of one of the following options:

A. One twenty-credit, single-subject composite teaching minor and one fifteen-credit, single-subject teaching minor.

B. One thirty-credit, single-subject teaching major.

C. One forty-credit composite teaching major.

HOME ECONOMICS EDUCATION (B.S.H.Ec.)

For this curriculum, see the School of Home Economics section.

INDUSTRIAL EDUCATION (B.S.Ed.)

Required course work includes the general requirements for students preparing to teach at the secondary level, plus:

Course	Credits
AgMech 101 Oxy-Acetylene Welding	2
AgMech 107 Arc Welding	2
AgMech 309 Gas Engines & Tractors	3
Engr 101-102 Engineering Graphics	4
IEd 115 Intro to Metals	1
IEd ID130 Basic Electricity	4

(Continued on next page)

IEd ID131 Basic Electronics 4
IEd 140 Wood Technics 3
IEd 250 General Metals 3
IEd 251 Plastics 2
IEd 253-254 Materials & Proc Lab I-II 5
IEd 310 Maintenance of Tools & Equip 3
IEd 420 Eval in Industrial Education 3
IEd 451 School Shop Planning & Admin 3
IEd 462 Industrial Ed Curriculum 3
IEd 472 Industrial Ed Methods 3

Plus either of the following options:

A. Five additional credits in approved shop courses and the satisfactory completion of one twenty-credit teaching minor.

B. Twenty additional credits in approved shop courses. Students electing this option are required to specialize in one or two technical areas of shopwork and earn at least twelve credits in each area of specialization. Areas available are: electricity-electronics, metals, drafting, wood, and building construction. Consult the chairman of Industrial Education for the list of approved courses that may be applied toward each area.

OFFICE OCCUPATIONS EDUCATION (B.S.Bus.Ed.)

Students whose primary interest is in teaching secretarial and clerical subjects and who wish to qualify for vocational certification should elect this major. Consult the office occupations education adviser concerning state requirements for the vocational education certificate. Required course work includes the general requirements for students preparing to teach at the secondary level, plus:

Course	Credits
Acctg 201 Principles of Accounting	3
Acctg 202 Managerial Accounting	3
Bus 301 Financial Management	3
Bus 365 Business Law	3
BusEd 491-492 Teaching BusEd I-II	6
BusEd 497 Coordination Techniques	3
Econ 251-252 Principles of Economics	6
Eng 313 Business Writing	3
Geog 140 Economic Geography	3
OAd 103 Typewriting III (may be waived by examination)	2
OAd 116 Shorthand II (may be waived by examination)	4
OAd 185 Machine Calculation	2
OAd 271-272 Shorthand III-IV	6
OAd 395 Secretarial Procedures	3
VocEd 322 Vocational Guidance	3
VocEd 351 Principles of Vocational Ed	2
VocEd 461 Occupational & Job Analysis	3
Business or economics electives	6

PHYSICAL EDUCATION: ELEMENTARY (B.S.Ed.)

Required course work includes the general requirements (including Zool 119) for students preparing to teach at the elementary level, plus:

Course	Credits
Dan 220 Rhythms for Children	2
H&S 288 First Aid	2
PE 105, 107, 108 Activities	3
PE 111 Fundamentals of Movement	2
PE 139 Gymnastics, *or* 142 Tumbling & Floor Exercises	2
PE 252 Elem School Physical Ed	2
PE 271 Interp of Phys Ed, Health, & Rec	3
PE 424 Adapted Physical Education	2
PE 496 Organization & Administration	3
Rec 264 Recreational Music	1

Additional Courses for Women

H&S 110 Health Issues 2
PE 115 Team Sports Backgrounds 2
PE 116 *or* 117 Indiv Sports Backgr 2
PE 322 Teaching Individual Sports 2
PE 323 Teaching Team Sports 2

Additional Courses for Men

H&S 150 Found of Health Science 3
PE 106 Individual & Dual Sports 1
PE 243 Highly Organized Games 2
PE 387 Intramural & Athletic Offic 3

Physical Education Electives

Select ten credits from among the following courses:
Dan 321 Theory & Tech of Teaching Dan 2
H&S 316 Elem School Health Mat 2
PE 419 Human Kinesiology 3
PE 427 Meth & Materials in Phys Ed 2
PE 467 PE & Rec for Handicapped 3
Rec 261 Recreational Arts & Crafts 2
Rec 329 Leadership in Recreation 2

Electives for Elementary Certification

Students who expect to teach physical education at the elementary level should take the following courses:
Ed 320 Prim Lang Arts Meth, *or*
322 Interm Lang Arts Meth 3
Ed 326 Elem School Mathematics Ed 3
Ed 421 Elem School Soc Studies Meth 2
Ed 444 Elem School Science Meth 2

PHYSICAL EDUCATION: SECONDARY (B.S.Ed.)

Required course work includes the general requirements (including Zool 119) for students preparing to teach at the secondary level, plus:

Course	Credits
H&S 245 Intro to Athletic Injuries	3
H&S 423 Health Education Methods	3
PE 105 Dance	1
PE 108 Swimming (may be waived by proficiency examination)	0-1
PE 115 Team Sports Backgrounds	2
PE 116 *or* 117 Individual Sports Backgrounds	2
PE 126 Weight Training & Conditioning	1
PE 139 Gymnastics	2
PE 141 Wrestling, *or* Dan 112 Dance Techniques	1-2
PE 142 Tumbling & Floor Exercise	2
PE 243 Highly Org Games, *or* 252 Elem School Phys Ed	2
PE 271 Interp of Phys Ed, Health, & Rec	3
PE 322 Teaching Individual Sports	2
PE 387 Intramural & Athletic Officiating	3
PE 418 Physiology of Exercise	3
PE 419 Human Kinesiology	3
PE 424 Adapted Physical Education	2
PE 427 Methods and Materials in Phys Ed	2
PE 481 Tests & Measurements	3
PE 496 Organization and Administration	3

Plus the satisfactory completion of one twenty-credit teaching minor (not including coaching).

Note: In exceptional cases, students who wish to complete a teaching major in a second field may have the above list of divisional requirements reduced to thirty credits with the approval of the division.

A single-subject sixty-credit major in physical education would include the above courses plus the following:

Dan 112 Dance Techniques 2
Dan 321 Theory & Tech of Teaching Dance, *or* PE 141 Wrestling 1-2
PE 111 Fundamentals of Movement 2
PE 116 *or* 117 Individual Sports Backgrounds (take the course not taken above) 2
PE 323 Teaching Team Sports 2
H&S 150 Foundations of Health Science 3
H&S 288 First Aid 2
Electives in HPER & Dan 3-4

In addition, electives can be taken to allow students to concentrate in the following options: Sports; Dance; Aquatics; Gymnastics.

RECREATION (B.S.Rec.)

This curriculum is primarily for students interested in careers in leadership, supervision, or management of recreation parks or youth-serving agencies. Majors in recreation satisfy the College of Education general requirements and the requirements of the Division of Health, Physical Education and Recreation by taking the following courses:

Course	Credits
Anthr 110 Intro to Phys Anthr & Archaeology	3
Arch 488 Park & Rec Plng, *or* Geog 447 Recreational Geography	2-3
Biol 100 Man & the Environment	4
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Eng 313 Business Writing	3
English electives (literature)	3
FWR 487 Wild Rec Interp Meth	3
Geog 100 Man's Physical Environment	4
Geol 101-102 Physical Geology & Lab	4
H&S 288 First Aid	2
PE 243 Highly Organized Games	2
PE 271 Interp of Phys Ed, Health, & Rec	3
PE 387 Intramural & Athl Officiating	3
Physical education activities (must include swimming and dance)	6
PolSc 101 American Government	3
Psych 100 Intro to Psychology	3
RadTV 141 Intro to Rad-TV Broadcasting	3
Rec 254 Camp Leadership	3
Rec 260 Man & Leisure	3
Rec 261 Recreational Arts & Crafts	2
Rec 264 Recreational Music	1
Rec 329 Leadership in Recreation	2
Rec 486 Prog Planning for Rec Centers	3
Rec 494 Admin Prac in Community Rec	3
Rec 495 Internship in Recreation	9
*Recreation option or approved minor	20
Soc 110 Intro to Sociology	3
Sp 131 Fundamentals of Speech, *or* 151 Voice, Diction, & Oral Interpretation	2
ThA 101 Intro to the Theatre	2
Electives to complete 128 cr for the degree	—

*Options are available in the following areas:

A. Recreation program development.
B. Youth agencies
C. Therapeutic recreation.
D. Commercial recreation.
E. Park recreation.

Consult the head of the Division of Health, Physical Education and Recreation for the specific course requirements for each of the above options.

MINOR IN RECREATION

Course	Credits
PE 105 Square & Social Dance	1
PE 252 Elem School Physical Ed	2
PE 271 Interp of Phys Ed, Health, & Rec	3
Rec 254 Camp Leadership	3
Rec 329 Leadership in Recreation	2
Plus three credits from the following:	
PE 226 Officiating Women's Sports	1
PE 387 Intramural & Athl Officiating	3
Rec 486 Prog Plng for Rec Ctrs	3
Rec 494 Admin Prac in Community Rec	3

Additional Courses for Women

Six credits selected from the following:

PE 105 Dance	1
PE 108 Swimming	1
PE 115 Team Sports Backgrounds	2
PE 116-117 Indiv Sports Backgr	2-4
PE 139 Gymnastics	2

Additional Courses for Men

Six credits selected from the following:

PE 126 Weight Train & Condition	1
PE 138 Swimming	1
PE 139 Gymnastics	2
PE 141 Wrestling	1
PE 142 Tumbling & Floor Exercise	2
PE 244 Life Saving	1

SECONDARY EDUCATION (B.S.Ed.)

Required course work includes the general requirements for students preparing to teach at the secondary level, plus one course in special methods applicable to secondary schools (Ed 315, 316, 317, 318, 319, 341, H&S 423, or another approved special methods course), and the satisfactory completion of one of the options below:

A. Two thirty-credit teaching majors.
B. One forty-credit teaching major and one twenty-credit teaching minor.
C. One thirty-credit teaching major with one twenty-credit and one fifteen-credit teaching minor.
D. One sixty-credit teaching major.

SPECIAL EDUCATION (B.S.Ed.)

Required course work includes the general requirements, plus:

Course	Credits
Psych 311 Abnormal Psychology	3
SpEd 190 Special Education Laboratory	3
SpEd 275 Educ of Exceptional Children	3
SpEd 377-378 Curriculum Development I-II	6
SpEd 421 Resources and Services	3
SpEd 423 Soc & Emot Asp of Exceptionality	3
SpEd 425 Diagnostic Evaluation	3
SpEd 480 Practicum	9
SpEd 487 Lang Development & Disorders	3

Plus completion of the requirements, as specified by the College of Education, for the Idaho Standard Elementary-School Certificate or for the Idaho Standard Secondary-School Certificate.

TECHNICAL EDUCATION (B.S.Ed.)

Required course work includes the general requirements for students preparing to teach at the secondary level, plus:

Course	Credits
Engr 101 Engineering Graphics	2
IEd 130 Basic Electricity	4
IEd 131 Basic Electronics	4
IEd 140 Wood Technics	3
IEd 250 General Metals	3
IEd 310 Maint of Tools & Equipment	3
IEd 365 Industrial Supervision	2
IEd 450 Industrial Safety	3
IEd 451 School Shop Planning & Admin	3
IEd 462 Industrial Ed Curriculum	3
IEd 472 Industrial Ed Methods	3
Psych 316 Industrial Psychology	3
Technical area of specialization (electricity, electronics, drafting, wood, or metals)	15-18

Students completing less than sixty credits in technical education and closely related courses must complete one twenty-credit teaching minor.

TRADE AND INDUSTRIAL EDUCATION (B.S.Ed.)

Required course work includes the general requirements for students preparing to teach at the secondary level, plus:

Course	Credits
VocEd 270, 370, 470 Tech Competence	30
VocEd 322 Vocational Guidance	3
VocEd 351 Principles of Voc Ed	2
VocEd 420 Evaluation in Voc Ed	3
VocEd 450 Industrial Safety	3
VocEd 451 School Shop Plng & Admin	3
VocEd 461 Occupational & Job Anal	3
VocEd 462 Voc Ed Curriculum	3

(Continued on next page)

VocEd 472 Voc Ed Methods	3
VocEd 480 Advanced Tech Competence	1-6
VocEd 481 Foundations of Voc Ed	2
VocEd 497 Coordination Techniques	3
VocEd 499 Directed Study (or approved electives)	3-9

Students completing less than sixty credits in trade and industrial education or closely related courses must complete one twenty-credit teaching minor.

VOCATIONAL-TECHNICAL EDUCATION (B.S.Ed.)

Required course work includes the general requirements for students preparing to teach at the secondary level, plus:

Course	Credits
VocEd 270, 370, 470 Tech Competence	30
VocEd 322 Vocational Guidance	3
VocEd 351 Principles of Voc Ed	2
VocEd 420 Evaluation in Voc Ed	3
VocEd 450 Industrial Safety	3
VocEd 451 School Shop Plng & Admin	3
VocEd 461 Occupational & Job Anal	3
VocEd 462 Voc Ed Curriculum	3
VocEd 472 Voc Ed Methods	3
VocEd 480 Advanced Tech Competence	1-6
VocEd 481 Foundations of Voc Ed	2
VocEd 497 Coordination Techniques	3
VocEd 499 Directed Study (or approved electives)	3-9

Students completing less than sixty credits in vocational-technical education or closely related courses must complete one twenty-credit teaching minor.

Teaching Majors and Minors in the College of Education

THE VARIOUS teaching majors and teaching minors required to accompany several of the curricula listed in the previous section are outlined below. Since the College of Education reserves the right to approve or disapprove the content of all proposed teaching majors and minors, students should confer closely with their college advisers and with advisers in the academic departments concerned in the selection of these courses.

AGRICULTURAL EDUCATION

The major in agricultural education is offered only in the major curriculum leading to the Bachelor of Science in Agricultural Education (see College of Agriculture section of the catalog). A teaching minor in agricultural education is not offered.

AMERICAN STUDIES

Students who complete this 60-credit teaching major in American studies will *in the process* also have completed *either* a 30-credit teaching major in English (option A, below) *or both* a 30-credit teaching major in history (option B) *and* a 40-credit major in social science (option C). Completing two or three teaching majors is possible because of extensive credit overlap: many of the 60 credits can be applied to more than one teaching major.

For any of these options, the student completes the 54-credit program required for the American studies major in the College of Letters and Science. If his or her "primary area" is American literature, the student takes six more credits in English to be certified both in English (option A) and in American studies. If his or her "primary area" is American history, the student takes six more credits to be certified in both history and social sciences (options B and C), as well as in American studies.

A. ENGLISH OPTION

In addition to Eng 103 and 104, required course work includes:

Course	Credits
Eng 267 *or* 268 Survey of Eng Lit	3
Eng 277-278 Survey of Amer Lit	6
Eng 401 Adv Comp, *or* 402 Comp & Crit	3
Eng 435 Shakespeare	3
Eng 442 Intro to Trans Gram, *or* 443 Language Variation	3
Electives in American English (including at least 9 cr at the 400-level and Eng 441, Intro to Study of Language)	12

B. HISTORY OPTION

Course	Credits
Hist 111-112 Intro to U.S. History	6
Electives in American history (400-level)	12
English or continental history electives	6
History electives (non-American)	6

C. SOCIAL SCIENCE OPTION

Note: Courses must include 3 cr in American government and at least one course from two of the following: world history, geography, sociology, and economics.

Course	Credits
Hist 111-112 Intro to U.S. History	6
Electives in American history (400 level)	12
English or continental history electives	6
Electives in American government, economics, geography, and sociology/anthropology	12
Additional courses in history or areas listed above	4

ANTHROPOLOGY

A teaching major in anthropology is not offered.

15-CREDIT ANTHROPOLOGY TEACHING MINOR

Course	Credits
Anthr 110 Intro to Phys Anthr & Archaeology	3
Anthr 120 Intro to Social Anthropology	3
Anthr 225 Aboriginal North Am Indian, *or* 325 Indians of Idaho	3
Approved anthropology electives	6

ART

A. 30-CREDIT ART TEACHING MAJOR

Course	Credits
Art 101-102 Survey of Art	4
Art 111-112 Drawing I	4
Art 121-122 Creative Process & Design	4
Art 211-212 Drawing II	6
Additional art courses selected from among those listed under the options in design, sculpture, or painting in the B.A. curriculum in art in the College of Letters and Science section of this catalog	12

B. ART TEACHING MINORS

Select fifteen to twenty credits from among the art courses listed above. At least twenty credits are required for art to be certified as a secondary school teaching field.

ART AREA

40-CREDIT COMPOSITE TEACHING MAJOR

Course	Credits
Art 101-102 Survey of Art	4
Art 111-112 Drawing I	4
Art 121 Creative Process & Design	2

Approved art electives 10
HEc 113 Art 3
HEc 314 Weaving 3
HEc 326 Housing & Home Furnishings 3
HEc 426 Hist of Interiors & Furnishings 3
IEd 290 Industrial Arts Crafts 2
Photo 281 Understanding Photography 3

BACTERIOLOGY

See Biological Sciences.

BIOLOGICAL SCIENCES

A. 40-CREDIT COMPOSITE TEACHING MAJOR

Course	Credits
Bact 250 General Bacteriology	4
Biol 201 Intro to the Life Sciences	4
Biol 202 General Zoology	4
Biol 203 General Botany	4
Biol 331 General Ecology	3
Biol 351-352 General Genetics & Lab	4
Biol 361 Biological Literature	1
Bot 311 Plant Physiology, *or* Zool 414 Cell Physiology	3
Bot 425 Developmental Plant Anatomy	4
Zool 323 Compar Vert Embryology, *or* 324 Compar Vert Anatomy	4
Approved electives from bacteriology, biology, botany, entomology, or zoology	5

B. 24-CREDIT COMPOSITE TEACHING MINOR

Course	Credits
Biol 201 Intro to the Life Sciences	4
Biol 202 General Zoology	4
Biol 203 General Botany	4
Biol 331 General Ecology	3
Biol 351-352 General Genetics & Lab	4
Biol 361 Biological Literature	1
Plus one of the following courses	4-5
Bot 311-312 Plant Phys & Lab	
Bot 425 Developmental Plant Anatomy	
Zool 323 Compar Vert Embryology	
Zool 324 Compar Vert Anatomy	
Zool 414 Cell Physiology	

BIOLOGY

See Biological Sciences.

BOTANY

See Biological Sciences.

BUSINESS EDUCATION

The major in business education is offered only in the major curriculum leading to the degree of Bachelor of Science in Business Education as outlined in the previous section.

20-CREDIT BOOKKEEPING TEACHING MINOR

Course	Credits
Acctg 201 Principles of Accounting	3
Acctg 202 Managerial Accounting	3
Bus 365 Business Law	3
BusEd 491 Teaching Business Educ I	3
Econ 251-252 Principles of Economics	6
OAd 103 Typewriting III	2

CHEMISTRY

Note: See the physics and mathematics prerequisites for the chemistry courses listed below.

A. 30-CREDIT CHEMISTRY TEACHING MAJOR

Course	Credits
Chem 111 Principles of Chemistry	4
Chem 112 Inorg Chem & Qual Analysis	5
Chem 253 Quantitative Analysis	5
Chem 277-278 Organic Chem I & Lab	4
Chem 305-306 Physical Chemistry	6
Chem 372 Organic Chemistry II	3
Chem 480 Elements of Biochemistry	3

B. CHEMISTRY TEACHING MINORS

The teaching minor in chemistry may be fifteen or twenty credits. For secondary-school teacher certification, twenty credits is required.

Course	Credits
Chem 111 Principles of Chemistry	4
or 103 Intro to Chemistry	(4-5)
Chem 112 Inorg Chem & Qual Analysis	5
Chem 275, 278 Carbon Comp & Lab	4
Chem 302-303 Prin of Phys Chem & Lab	4
Chem 480 Elements of Biochemistry	3

COACHING: MEN

A teaching major in coaching is not offered.

20-CREDIT TEACHING MINOR IN COACHING

Male students majoring or having a teaching major in an academic field outside the Division of Health, Physical Education and Recreation may elect this coaching minor. Students majoring or having a teaching minor in the Division of Health, Physical Education and Recreation may not elect this coaching minor.

Course	Credits
Ed 428 Audiovisual Aids	3
H&S 245 Intro to Athletic Injuries	3
PE 126 Weight Training & Conditioning	1
PE 141 Wrestling	1
PE 271 Interp of Phys Ed, Health & Rec	3
PE 387 Intramural & Athl Officiating	3
PE 497 Sports & Athletic Problems	3
Four credits selected from the following	4
PE 139 Gymnastics	
PE 266 Aquatic Instructor's Course	
PE 341, 342, 343, 344 Coaching Meth	

DANCE

A teaching major in dance is not offered.

20-CREDIT DANCE TEACHING MINOR

Course	Credits
Art 101 *or* 102 Survey of Art	2
Dan 105 Square & Social Dance	1
Dan 105 Dance (folk and modern)	2
Dan 112 Dance Techniques	2
Dan 113 Prob in Dance Composition	2
Dan 220 Rhythms for Children	2
Dan 320 Labanotation	1
Dan 321 Theory & Tech of Tchng Dance	2
Dan 325 Dance Production	2
MusH 100 Music Appreciation	3
Two credits selected from the following	2
Dan 105 Dance (advanced folk, ballet, and jazz)	
Dan 113 Prob in Dance Composition	
Dan 499 Directed Study	
PE 111 Fundamentals in Movement	
RadTV 292 Intro to TV Production	
RadTV 322 Ed Uses of Broadcasting	
RadTV 388 Cinematography for TV	
ThA 105 Basics of Performance	
ThA 266 Creative Dramatics	

DISTRIBUTIVE EDUCATION

The major in distributive education is offered only in the major curriculum leading to the degree of Bachelor of Science in Business Education as outlined in the previous section. A teaching minor in distributive education is not offered.

EARTH SCIENCE

40-CREDIT COMPOSITE TEACHING MAJOR

Course	Credits
Geog 100 Man's Physical Environment	4
Geog 140 Economic Geography	3
Geog 250 World Regional Geography	3
Geog 362 United States & Canada	3
Geog 380 Cartography	3
Geog 401 Atmospheric Environment	3
Geol 101-102 Physical Geology & Lab	4
Geol 106-107 Historical Geology & Lab	4
Geol 211 Ancient Life	4
Geol 255 Mineralogy	2
Geol 265 Lithology	2
Geol 335 Geomorphology	3
Plus two approved credits; the following are recommended	2
Geog 427 Dec-Making in Resource Mgmt	
Geog 455 Asia	
Geol 301 Field Geology & Report Wrtg	
Geol 345 Structural Geology	

EDUCATIONAL ADMINISTRATION

No undergraduate major or minor is offered in educational administration. Students who are planning to go into this specialized field must first complete an undergraduate program, preferably with a teaching major in social science, obtain a bachelor's degree and teaching experience, then enter the Graduate School to pursue a program leading to an advanced degree in educational administration.

ENGLISH

Note: No English course numbered below 267 may be counted toward the satisfaction of the minimum credits required for a teaching major or teaching minor in English. Recommended preparation includes Eng 111-112 (Lit of Western Civ) or 175 (Intro to Lit). Where specific courses are listed with the area requirements, the Department of English may approve equivalencies.

A. 30-CREDIT ENGLISH TEACHING MAJOR

Course	Credits
Eng 267-268 Survey of English Lit	6
Eng 277 *or* 278 Survey of American Lit	3
Eng 401 *or* 402 Adv Comp *or* Comp & Crit	3
Eng 435 Shakespeare	3
Eng 441 *and* 442 *or* 443 Linguistics	6
Area requirements (one course from each of the following three groups)	9

Middle Ages/Renaissance/17th Cent:
Eng 433 Chaucer
Eng 434 Middle English Lit
Eng 437 English Drama to 1642
Eng 451 16th-Cent Poetry & Prose
Eng 452 Milton
Eng 453 17th-Cent Poetry & Prose

Restoration/18th & 19th Cent British:
Eng 421 Dev of English Novel
Eng 422 19th-Cent English Novel
Eng 438 English Drama, 1660-1800
Eng 456 Restoration & 18th Cent
Eng 465 Romantic Period
Eng 466 Victorian Period

American Lit/20th Cent Brit & Am:
Eng 426 Modern Poetry
Eng 427 Amer Fiction in 20th Cent
Eng 428 Brit Fiction in 20th Cent
Eng 439 Modern Eng & Amer Drama
Eng 470 Amer Lit to 1830
Eng 471 Poe, Hawthorne, & Melville
Eng 472 Emerson, Thoreau, & Whitman
Eng 474 Growth of Amer Realism

B. 30- OR 40-CREDIT COMPOSITE ENGLISH TEACHING MAJOR

Requirements include the same courses specified for the 30-credit English teaching major, plus ten credits in approved electives from English, journalism, speech, or theatre arts. English electives must be selected from among the following or from those courses not used to satisfy the area requirements specified above:

Eng 400 Seminar
Eng 425 Irish Literary Renaissance
Eng 436 Advanced Shakespeare
Eng 473 Lit of the Amer West
Eng 482-483 Major Authors
Eng 494 Methods of Lit Criticism
Eng 495 Literary Criticism

C. 20-CREDIT ENGLISH TEACHING MINOR

Course	Credits
Eng 267-268 Survey of English Lit	6
Eng 277 *or* 278 Survey of American Lit	3
Eng 401 *or* 402 Adv Comp *or* Comp & Crit	3
Eng 435 Shakespeare	3
Eng 441 Intro to Study of Language	3
Approved English electives	2

D. 15-CREDIT ENGLISH TEACHING MINOR

Course	Credits
Eng 267-268 Survey of English Lit	6
Eng 401 *or* 402 Adv Comp *or* Comp & Crit	3
Eng 435 Shakespeare	3
Eng 441 Intro to Study of Language	3

ENTOMOLOGY

See Science.

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. 30-CREDIT FRENCH TEACHING MAJOR

Course	Credits
FL/FR 101-102 Elementary French	8
FL/FR 201-202 Intermediate French	8
FL/FR 301-302 Adv French Gram & Comp	6
FL/FR 303-304 French Culture & Inst	6
FL/FR 413 French for Teachers	2

Additional preparation in the French courses listed in the catalog is recommended.

B. 20-CREDIT FRENCH TEACHING MINOR

Course	Credits
FL/FR 101-102 Elementary French	8
FL/FR 201-202 Intermediate French	8
Approved French electives (FL/FR 301-302 is especially recommended)	4

Note: A minor in French of less than twenty credits is not acceptable.

GENERAL SCIENCE

See Science.

GENERAL SOCIAL SCIENCE

See Social Science.

GEOGRAPHY

A. 30-CREDIT GEOGRAPHY TEACHING MAJOR

Course	Credits
Geog 100 Man's Physical Environment	4
Geog 140 Economic Geography	3
Geog 250 World Regional Geography	3
Geog 265 Cultural Geography	3
Geog 362 United States & Canada	3
Geog 364 Idaho & Pacific Northwest	3
Geog 401 Atmospheric Environment	3
Geog 455 Asia	3

Geog 468 Geog of Admin Areas	3
Approved geography electives (Geog 427 recommended)	2

B. 20-CREDIT GEOGRAPHY TEACHING MINOR

Course	Credits
Geog 100 Man's Physical Environment	4
Geog 140 Economic Geography	3
Geog 250 World Regional Geography	3
Geog 265 Cultural Geography	3
Geog 362 United States & Canada	3
Geog 427 Dec-Making in Res Mgmt	3
Approved geography electives (Geog 455 recommended)	1

GEOLOGY

A teaching major in geology is not offered.

20-CREDIT GEOLOGY TEACHING MINOR

Course	Credits
Geol 101-102 Physical Geology & Lab	4
Geol 106-107 Historical Geology & Lab	4
Geol 211 Ancient Life	4
Geol 255 Mineralogy	2
Geol 265 Lithology	2
Plus four credits from the following	4
Geol 301 Field Geol & Report Wrtg	
Geol 335 Geomorphology	
Geol 345 Structural Geology	

GERMAN

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. 30-CREDIT GERMAN TEACHING MAJOR

Course	Credits
FL/GN 121-122 Elementary German	8
FL/GN 221-222 Intermediate German	8
FL/GN 321-322 Adv German Gram & Comp	6
FL/GN 327-328 Survey of German Lit	6
FL/GN 433 German for Teachers	2
Additional preparation in the German courses listed in the catalog is recommended.	

B. 20-CREDIT GERMAN TEACHING MINOR

Course	Credits
FL/GN 121-122 Elementary German	8
FL/GN 221-222 Intermediate German	8
Approved German electives (FL/GN 321-322 is especially recommended)	4

Note: A minor in German of less than twenty credits is not acceptable.

GUIDANCE AND COUNSELING

An undergraduate major is not offered in guidance and counseling. Students who wish to qualify for guidance and counseling may qualify as teachers in any subject area and enroll in guidance and counseling programs later in graduate school. Those definitely planning to become counselors should seek an adviser from the guidance faculty. Generally a major in psychology and a minor in sociology/anthropology or a major in sociology/anthropology and a minor in psychology is the preferred undergraduate preparation for counseling candidates. The current prerequisites for graduate work in guidance and counseling are contained in a psychology minor.

HEALTH EDUCATION

A teaching major in health education is not offered.

20-CREDIT HEALTH EDUCATION TEACHING MINOR

Students minoring in health education who plan to apply for teacher certification must include a course in anatomy or physiology in their science sequence.

Course	Credits
Bact 254 Public Health & Hygiene	3
H&S 150 Found of Health Sc, *or* 110 Health Issues	2-3
H&S 288 First Aid	2
H&S 423 Health Educ Methods	3
Psych 205 Developmental Psychology	3
Six or seven credits from the following	6-7
HEc 270 Nutrition	
HEc 448 Consumer Educ	
Psych 210 Human Sexuality	
Psych 311 Abnormal Psychology	
Soc 320 Marriage & the Family	

HISTORY

A. 30-CREDIT HISTORY TEACHING MAJOR

Course	Credits
Hist 101-102 History of Civilization	6
Hist 111-112 Intro to U.S. History	6
American government	3
Additional history courses	15

Note: In selecting the fifteen credits in courses offered by the Department of History, balance them as closely as feasible to an equal number of credits in the history of the Old World and the history of the New World. Students who will also have a teaching minor in English are urged to take at least six credits in English history as a part of this teaching major.

Students seeking secondary-school certification from the state of Idaho are urged to get it in social studies rather than history. For this purpose, they should also take, in addition to the above, at least three credits in geography, sociology, economics, or anthropology.

B. HISTORY TEACHING MINORS

The teaching minor in history may be fifteen or twenty credits; however, for Idaho secondary-school certification, a minimum of twenty is required. All courses must be in history. Follow the history teaching major (above) in selecting courses. Students who will also have a teaching major in English are urged to take at least six credits in English history as a part of the twenty credits required in the history minor.

HOME ECONOMICS EDUCATION

The major in home economics education is offered only in the major curriculum leading to the Bachelor of Science in Home Economics (see School of Home Economics section of the catalog). A teaching minor in home economics education is not offered.

INDUSTRIAL EDUCATION

The major in industrial education is offered only under the major curriculum outlined in the previous section.

20-CREDIT TEACHING MINOR IN INDUSTRIAL EDUCATION

For certification to teach industrial education, a teaching minor must contain at least twenty credits, including not less than fifteen 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.

Course	Credits
Engr 101 Engineering Graphics	2
IEd ID130 Basic Electricity	4
IEd 140 Wood Technics	3
IEd 250 General Metals	3
IEd 310 Maintenance of Tools & Equip	3
IEd 462 Industrial Ed Curriculum	3
IEd 472 Industrial Ed Methods	3

JOURNALISM

A teaching major in journalism is not offered.

(Continued on next page)

20-CREDIT JOURNALISM TEACHING MINOR

Course	Credits
Comm 120 Mass Comm in a Free Soc	2
Comm 455 Hist of Mass Comm	3
Jour 121 News Writing	3
Jour 222 Reporting	3
Jour 354 News Editing	3
Jour 405 Superv High School Publi	2
Journalism electives	4

LATIN

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. 30-CREDIT LATIN TEACHING MAJOR

Course	Credits
FL/LA 161-162 Elementary Latin	8
FL/LA 261-262 Intermediate Latin	8
FL/LA 361-362 Adv Latin Gram & Comp	6
FL/LA 365-366 Survey of Latin Literature	6
FL/LA 467 Latin for Teachers	2

Additional preparation in the Latin courses listed in the catalog is recommended.

B. 20-CREDIT LATIN TEACHING MINOR

Course	Credits
FL/LA 161-162 Elementary Latin	8
FL/LA 261-262 Intermediate Latin	8
Approved Latin electives (FL/LA 361-362 is especially recommended)	4

Note: A minor in Latin of less than twenty credits is not acceptable.

LIBRARY SCIENCE

A teaching major in library science is not offered.

LIBRARY SCIENCE TEACHING MINORS

The teaching minor in library science may be either fifteen or twenty credits. This teaching minor will qualify the student for the Idaho school librarianship credential. Since library science is not a teaching field, the teacher-librarian who must qualify for a standard Idaho teacher's certificate will need to develop a second teaching minor in addition to his or her teaching major.

Course	Credits
LibSc 420 Classification & Cataloging	4
LibSc 421 Selection of Books	3
LibSc 422 Use of the School Library	2
LibSc 423 Ref in School Libraries	3
Library science electives	3-8

MATHEMATICS

A. 40-CREDIT MATHEMATICS TEACHING MAJOR

Course	Credits
Math 180, 190, 200 Anal Geom & Calc	11
Math 184 Elements of Linear Algebra	2
Math 186 Theory of Numbers	3
Math 300 Math for Teachers, *or* 490 Intro to Set Theory	3
Math 320 Probability & Statistics, *or* 451 Prob Theory & Math Statistics	3
Math 390 Postulational Geometry	3
Math 461 Higher Algebra	3
Math 471 Advanced Calculus	3
Additional mathematics courses numbered above 200	9

B. 30-CREDIT MATHEMATICS TEACHING MAJOR

Course	Credits
Math 180, 190, 200 Anal Geom & Calc	11
Math 184 Elements of Linear Algebra	2
Math 186 Theory of Numbers	3
Math 300 Math for Teachers, *or* 490 Intro to Set Theory	3
Math 320 Probability & Statistics, *or* 451 Prob Theory & Math Statistics	3
Two courses from the following	6
Math 390 Postulational Geometry	
Math 461 Higher Algebra	
Math 471 Advanced Calculus	
One additional mathematics course numbered above 200	2

C. 20-CREDIT MATHEMATICS TEACHING MINOR

Course	Credits
Math 180, 190 Anal Geom & Calc I-II	8
Math 186 Theory of Numbers	3
Math 300 Mathematics for Teachers	3
Math 320 Probability & Statistics, *or* 451 Prob Theory & Math Statistics	3
One of the following courses	3
Math 205 Intro to Computer Prog	
Math 390 Postulational Geometry	
Math 461 Higher Algebra	

D. 15-CREDIT MATHEMATICS TEACHING MINOR

Course	Credits
Math 180 Anal Geom & Calc I	4
Math 184 Elem of Linear Algebra	2
Math 186 Theory of Numbers	3
Math 300 Mathematics for Teachers	3
One of the following courses	3
Math 190 Anal Geom & Calc II	
Math 205 Intro to Computer Prog	
Math 320 Probability & Statistics	
Math 390 Postulational Geometry	

MUSIC EDUCATION

The majors in music education are offered only in the major curricula leading to the degree of Bachelor of Music (see School of Music section of this catalog).

20-CREDIT MUSIC TEACHING MINOR

Course	Credits
MusA 387 Conducting I	2
MusC 141, 142 Musicianship & Music Lit and Theory of Music I, *or* MusC 121-122 Elements of Music Theory	6-8
MusC 133 Theory Keyboard Laboratory	1
MusH 321-322 Music in Western Civ, *or* two courses from the following	4-6
MusH 144 History of Music I	
MusH 243 History of Music II	
MusH 244 History of Music III	
MusH 411 Music in Medieval World	
MusH 412 Medieval & Ren Music	
MusH 413 Music in Baroque Era	
MusH 414 Rococo & Preclassical Music	
MusH 415 Viennese Classical Period	
MusH 416 Music in the Romantic Era	
MusH 417 Late 19th-Century Music	
MusH 418 Music in the 20th Century	
MusT 381 Elem School Music Methods, *or* 385 Choral Music in the Sec School, *or* 386 Instr Music in the Sec School	2-3
Applied performance electives	1
Electives to total 20 cr for the teaching minor selected from the following	—
MusA 145-146 Piano Class	
MusA 147-148 Voice Class	
MusA 265, 365 Chamber Ensemble	
MusA 487 Conducting II	
MusT 251 String Instrument Tech	
MusT 252 Reed Instrument Tech	
MusT 253 Brass Instrument Tech	
MusT 254 Flute & Percussion Tech	
MusT 383 Prin of Music Teaching	

OFFICE OCCUPATIONS EDUCATION

The major in office occupations education is offered only in the major curriculum leading to the degree of Bachelor of Science in Business Education as outlined in the previous section.

21-CREDIT OFFICE OCCUPATIONS EDUCATION TEACHING MINOR

Course	Credits
BusEd 491 Teaching Business Educ I	3
Eng 313 Business Writing	3
OAd 103 Typewriting III	2
OAd 185 Machine Calculation	2
OAd 271-272 Shorthand III-IV	6
OAd 313 Office Management	2
OAd 395 Secretarial Procedures	3

OFFICER EDUCATION

TEACHING MINORS IN OFFICER EDUCATION

This teaching minor may consist of either fifteen or twenty credits in approved courses from aerospace studies, military science, or naval science.

PHYSICAL EDUCATION

Also see: Coaching, Dance, Health Education, and Recreation.

The majors in physical education are offered only under the major curricula outlined in the previous section.

TEACHING MINORS IN PHYSICAL EDUCATION

Students who plan to apply for teacher certification must take health education and anatomy or physiology. These requirements may be met by taking H&S 423, Health Education Methods, and Zool 119, Human Anatomy & Physiology.

The general university requirement in physical education activity courses is waived for majors and minors in this field.

A. 20-Credit Minor for Secondary Level

Course	Credits
PE 105 Dance	1
PE 108 Swimming (demonstrate swimming proficiency or take interm swim)	0-1
PE 115 Team Sports Background	2
PE 116 *or* 117 Individual Sports Background	2
PE 139 *or* 142 Gymnastics *or* Tumbling	2
PE 271 Interp of Phys Ed, Health & Rec	3
PE 322 Teaching Individual Sports	2
PE 427 Methods & Materials in Phys Ed	2
PE 496 Organization & Administration	3
H&S 245 Intro to Athletic Injuries	3

Recommended electives:

PE 252 Elem School Physical Education
PE 418 Physiology of Exercise
PE 419 Kinesiology

B. 20-Credit Minor for Elementary Level

Course	Credits
Dan 220 Rhythms for Children	2
H&S 150 Foundations of Health Sc	3
PE 111 Fundamentals of Movement	2
PE 115 Team Sports Background	2
PE 116 *or* 117 Individual Sports Background	2
PE 139 Gymnastics	2
PE 252 Elem School Physical Education	2
PE 271 Interp of Phys Ed, Health & Rec	3
PE 427 Methods & Materials in Phys Ed	2

Recommended electives:

PE 243 Highly Organized Games
Rec 264 Recreational Music

PHYSICAL SCIENCES

40-CREDIT COMPOSITE TEACHING MAJOR

This is a forty-credit composite teaching major consisting of courses in chemistry, geology, and physics. It must include at least eighteen credits in chemistry or physics and a minimum of eight credits in each of these two fields. A teaching minor in mathematics is recommended to accompany this teaching major.

Course	Credits
Chem 111 Prin of Chemistry	4
Chem 112 Inorg Chem & Qual Anal	5
Chem 275 Carbon Compounds	3
Geol 101-102 Physical Geology & Lab	4
Phys 220-221-222 Engineering Physics	9
Phys 411-412 Physical Instrumentation	5
Additional courses in chemistry, geology, or physics to complete distribution required above	—

Recommended electives:

Chem 302 Prin of Physical Chem
Chem 480 Elements of Biochemistry

PHYSICS

Electives specified in the following programs require approval by the adviser from the Department of Physics.

Math 180, 190, and 200 are prerequisites to the required physics courses.

A. 30-CREDIT PHYSICS TEACHING MAJOR

Course	Credits
Phys 220-221-222 Engineering Physics	9
Phys 321 Analytical Mechanics	3
Phys 341 Electricity & Magnetism	3
Phys 360 Intro to Modern Physics	3
Approved electives in physics, including at least two credits of lab work	12

B. 20-CREDIT PHYSICS TEACHING MINOR

Course	Credits
Phys 220-221-222 Engineering Physics	9
Phys 360 Intro to Modern Physics	3
Approved electives in physics, including at least two credits of lab work	8

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 American government and political process, including PolSc 101, 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 thirty credits must be in political science courses; however, note that six credits in U.S. history are also required for certification in this field.

American Government and Political Process	Credits
PolSc 101 American Government	3
Plus nine-twelve credits from the following:	
PolSc 105 Intro to Pol Science	3
PolSc 152 Politics & Pollution	1
PolSc 153 Politics & Peace	1
PolSc 154 Politics & the Economy	1
PolSc 275 Amer State Government	3
PolSc 276 Amer Local Government	3
PolSc 428 Amer Political Thought	3
PolSc 431 Political Parties	3
PolSc 432 The Legislative Process	3
PolSc 433 Public Opin & Elec Behav	3
PolSc 451 Public Administration	3
PolSc 452 Admin Law & Regulation	3
PolSc 467 Constitutional Law	3
PolSc 469 The Judicial Process	3
PolSc 493-494 Sem in Urban Studies	2-4

Comparative Government and Politics

At least three credits from the following:	
PolSc 285 Pol Systems of West Europe	3
PolSc 286 Communist Pol Systems	3
PolSc 385 African Political Systems	3
PolSc 483 Modernization & Pol Change	3
PolSc 484 Pol Systems of S Asia	3

International Relations

At least three credits from the following:	
PolSc 153 Politics & Peace	1
PolSc 237 International Politics	3
PolSc 341 World Politics & Arms Race	3

(Continued on next page)

PolSc 438 Conduct of Amer For Pol 3
PolSc 440 Inter Org & Law 3
PolSc 443 For Policy of Asian Gvmts 3

Public Administration and Public Law

At least three credits from the following:
PolSc 451 Public Administration 3
PolSc 452 Admin & Regulation 3
PolSc 454 Admin Org & Behavior 3
PolSc 467 Constitutional Law 3
PolSc 469 The Judicial Process 3

Political Thought

At least three credits from the following:
PolSc 425 Western Pol Thought 3
PolSc 426 Recent Pol Thought 3
PolSc 428 American Pol Thought 3

B. TEACHING MINOR IN POLITICAL SCIENCE

The teaching minor in political science may be fifteen or twenty credits, but only the latter will satisfy the requirements for teacher certification at the secondary-school level. Six credits of U.S. history are also required for certification in this field.

Course	Credits
PolSc 101 American Government	3
Three additional credits in American government (see the list of courses in American government and political process under the teaching major above)	3
Three credits in comparative government (see the list of courses in comparative government and politics under the teaching major above)	3
Approved political science courses selected from those listed under the teaching major	6-11

PSYCHOLOGY

A. 30-CREDIT PSYCHOLOGY TEACHING MAJOR

The basic objective of this teaching major is to provide the undergraduate student with preparation which leads to teaching psychology in secondary schools, and/or to undertake graduate work in several related areas. Though psychology is certifiable, 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 science), if elected as a second teaching major, should meet the forty-credit requirement.

Course	Credits
Psych 100 Intro to Psychology	3
Psych 201 Research in Behav Sci	4
Psych 202 General Exper Psych	4
Psych 205 Developmental Psychology	3
Psych 217 Intro to Stat for Behav Sci	3
Psych 311 Abnormal Psych, *or* 320 Soc Psych, *or* 461 Psych of Personality	3
Psych 400 Seminar	3
Psych 441 Physiological Psych, *or* 444 Sensation & Perception, *or* 455 Psych of Motivation	3
Psych 490 Psychology of Learning	3
Psychology electives (Guid 420 and 460 are recommended for students planning to pursue graduate work in guidance and counseling)	1

B. 20-CREDIT PSYCHOLOGY TEACHING MINOR

Course	Credits
Psych 100 Intro to Psychology	3
Psych 201 Research in Behav Sc	4
Psych 205 Developmental Psych	3
Psych 217 Intro to Stat for Behav Sci	3
Psych 490 Psychology of Learning	3
Approved psychology electives	4

RECREATION

The major and minor in recreation are outlined in the previous section.

RUSSIAN

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. 30-CREDIT RUSSIAN TEACHING MAJOR

Course	Credits
FL/RU 171-172 Elementary Russian	8
FL/RU 271-272 Intermediate Russian	8
FL/RU 371-372 Adv Russian Gram & Comp	6
FL/RU 498 Russian Proseminar (or equiv)	8
Additional preparation in Russian seminars or directed study is recommended.	

B. 20-CREDIT RUSSIAN TEACHING MINOR

Course	Credits
FL/RU 171-172 Elementary Russian	8
FL/RU 271-272 Intermediate Russian	8
Approved Russian electives (FL/RU 371-372 is especially recommended)	4

Note: A minor in Russian of less than twenty credits is not acceptable.

SAFETY AND DRIVER'S EDUCATION

A teaching major in safety and driver's education is not offered.

20-CREDIT SAFETY AND DRIVER'S EDUCATION TEACHING MINOR

Course	Credits
CE 372 Transportation Engr, *or* 474 Highway Design & Operations	2
CE 473 Highway Planning	2
H&S 288 First Aid	2
H&S 400 Seminar: Driver Rehabilitation	1
H&S 400 Seminar: Court Alcohol School	1
H&S 440 Driver Education I	3
H&S 449 Driver Education II	3
IEd 450 Industrial Safety	3
Psych 320 Intro to Social Psych, *or* 455 Psych of Motivation	3

SCIENCE

A. 40-CREDIT COMPOSITE TEACHING MAJOR

Courses for this composite teaching major may be selected from bacteriology, biology, botany, chemistry, entomology, physical geography, geology, physics, and zoology. A minimum of eighteen credits is required in biological sciences, chemistry, earth sciences, or physics. These eighteen credits are to be selected from among the courses listed in the teaching minors in these fields. This composite teaching major is recommended only for students who plan to teach at the junior-high-school level.

B. 20-CREDIT COMPOSITE TEACHING MINOR

Required course work consists of approved courses from the fields listed above. At least eight credits must be in laboratory courses. This 20-credit composite teaching minor may be taken only by majors in elementary education.

SOCIAL SCIENCE

A. 40-CREDIT COMPOSITE TEACHING MAJOR

Courses for this composite teaching major may be selected from anthropology, economics, geography (excluding physical geography), history, philosophy, political science, and sociology. At least eighteen of the required forty credits must be from history, including at least nine credits in American history. At least three credits are required in each of the following fields: American government, economics, geography, and sociology or anthropology.

B. 20-CREDIT COMPOSITE TEACHING MINOR

Required course work consists of approved courses from the fields listed above. This composite minor must include at least three credits in American history or American government and is limited to students who are majoring in elementary education.

SOCIOLOGY

A teaching major in sociology is not offered.

15-CREDIT SOCIOLOGY TEACHING MINOR

Course	Credits
Soc 110 Intro to Sociology	3
Soc 230 Social Problems	3
Approved sociology electives	9

SOCIOLOGY/ANTHROPOLOGY

A teaching major in sociology/anthropology is not offered.

20-CREDIT SOCIOLOGY/ANTHROPOLOGY TEACHING MINOR

Course	Credits
Anthr 110 Intro to Phys Anthr & Archaeology, *or* 120 Intro to Social Anthr	3
Anthr 225 Aboriginal North Am Indian, *or* 325 Indians of Idaho	3
Soc 110 Intro 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. 30-CREDIT SPANISH TEACHING MAJOR

Course	Credits
FL/SP 181-182 Elementary Spanish	8
FL/SP 281-282 Intermediate Spanish	8
FL/SP 381-382 Adv Spanish Gram & Comp	6
FL/SP 383-384 Hispanic Culture & Inst	6
FL/SP 493 Spanish for Teachers	2

Additional preparation in the Spanish courses listed in the catalog is recommended.

B. 20-CREDIT SPANISH TEACHING MINOR

Course	Credits
FL/SP 181-182 Elementary Spanish	8
FL/SP 281-282 Intermediate Spanish	8
Approved Spanish electives (FL/SP 381-382 is especially recommended)	4

Note: A minor in Spanish of less than twenty credits is not acceptable.

SPECIAL EDUCATION

The major in special education is offered only under the major curriculum outlined in the previous section.

20-CREDIT SPECIAL EDUCATION TEACHING MINOR

Course	Credits
SpEd 190 Special Education Lab	2
SpEd 275 Educ of Exceptional Children	3
Approved special education electives	15

Note: This minor is designed for individuals preparing to work in fields ancillary to special education. It is not intended for those individuals interested in teaching the exceptional child.

SPEECH

A. 30-CREDIT SPEECH TEACHING MAJOR

Course	Credits
Comm 370 Comm & Attitude Change	3
Comm 491 Propaganda	2
Sp 109 Intercoll Forensics, *or* 262 Parliamentary Law & Procedure	1
Sp 131 Fundamentals of Speech	2
Sp 231 Informative Speech	2
Sp 331 Persuasive Speech	3
Sp 362 Comm & Small Group	3
Sp 421 Intro to Rhetorical Theory	3
Sp 480 General Semantics, *or* Comm 488 Theory in Communication	3
Additional courses in speech	8

B. SPEECH TEACHING MINORS

The teaching minor in speech may be fifteen or twenty credits; however, twenty credits is required for certification in speech at the secondary-school level. Select courses from those specified for the speech teaching major.

TECHNICAL EDUCATION

See Industrial Education.

THEATRE ARTS

A. 30-CREDIT THEATRE ARTS TEACHING MAJOR

Course	Credits
ThA 102 Stage Makeup	1
ThA 105 Basics of Performance	2
ThA 163 Technical Production	3
ThA 271 Play Analysis	3
ThA 272 Intermediate Acting	3
ThA 362 Costume for the Stage	2
ThA 420 Production Management	2
ThA 471-472 Directing	6
Approved theatre arts electives	8

B. THEATRE ARTS TEACHING MINORS

The teaching minor in theatre arts may be fifteen or twenty credits. For secondary-school teacher certification, twenty credits are required.

Course	Credits
ThA 102 Stage Makeup	1
ThA 105 Basics of Performance	2
ThA 163 Technical Production	3
ThA 271 Play Analysis	3
ThA 362 Costum for the Stage	2
ThA 420 Production Management	2
ThA 471 Directing	3
Approved theatre arts electives	4

THEATRE ARTS-SPEECH

40-CREDIT COMPOSITE TEACHING MAJOR

Course	Credits
Sp 109 Intercollegiate Forensics	1
Sp 151 Voice, Diction & Oral Interp	2
Sp 231 Informative Speech	2
Sp 262 Parliamentary Law & Procedure	1
Sp 331 Persuasive Speech	3
Sp 362 Comm & Small Group	3
Sp 440 Speech for Teachers	3
Sp 480 General Semantics, *or* Comm 488 Theory in Communication	3
ThA 102 Stage Makeup	1
ThA 105 Basics of Performance	2
ThA 163 Technical Production	3
ThA 362 Costume for the Stage	2
ThA 420 Production Management	2
ThA 471-472 Directing	6
Approved electives in theatre arts and speech	6

TRADE AND INDUSTRIAL EDUCATION

The major in trade and industrial education is offered only in the major curriculum leading to the B.S.Ed. degree as outlined in the previous section. A teaching minor in trade and industrial education is not offered.

VOCATIONAL-TECHNICAL EDUCATION

The major in vocational-technical education is offered only in the major curriculum leading to the B.S.Ed. degree as outlined in the previous section. A teaching minor in vocational-technical education is not offered.

ZOOLOGY

See Biological Sciences.

College of Engineering

Robert R. Furgason, Dean (125 Janssen Engr. Bldg.); George R. Russell, Assistant Dean and Secretary of the College Faculty; Weldon R. Tovey, Assistant Dean.

THE COLLEGE OF ENGINEERING has as its purpose to provide an educational experience which will afford maximum opportunity for qualified students to develop into useful citizens and well-educated professional engineers. To this end, the instructional and inspirational facilities of the entire university are available to students of the College of Engineering.

The Engineering Profession

Utilizing scientific principles, members of the engineering profession create useful and economic works for the benefit of mankind. 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 planning and execution of systems needed for the support of all human activity such as food production, transportation, and control of man's environment. Many engineers hold responsible management positions. Engineers are key members of the interdisciplinary teams needed to 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 humanistic-social studies to help him or her to relate the technical preparation received to the world today and to 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. The technology of engineering includes an exceedingly wide range of subject matter which can be explored only to a limited extent in an undergraduate program. A rapidly increasing number of students undertake graduate study for better preparation in a specific field before entering practice.

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 upon completion 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.

Engineering Aptitudes

Those likely to succeed in engineering are students of serious purpose, willing to do consistently hard work, and with high school records that show marked ability in mathematics, physics, and chemistry. Equally important are: (1) ability to visualize in three dimensions the parts of a structure or the operation of a machine or device; (2) facility in the use of written and spoken English; and (3) possession of those desirable personal attributes which enable one to inspire associates and assistants to work together effectively. Without these qualifications, the chances for a successful career are poor. Aptitude for mathematics and science is important because an engineer's job is the practical application of science.

If the above qualifications and aptitudes are lacking, it is not advisable to undertake the study of engineering. A desire or ability to tinker with machines, to make things with one's hands, or to operate machinery is helpful but not enough. Students with these aptitudes only should consider the desirability of vocational or technical institute training in preference to professional engineering.

Although engineering has been traditionally practiced by men, there are many opportunities for women. An increasing number of young women are entering the profession. Several are enrolled at the University of Idaho.

Preparation and Admission

To enter a regular college course in engineering, the student should have completed four years of high school with three units of English, four units of mathematics, three units of natural science, including one unit of physics and one unit of chemistry, and two units of social science. A student may be admitted with less than the above, but the deficiency must be made up before he or she can progress very far in a college engineering course. Deficiencies can be made up readily by attending summer sessions; this is strongly recommended to avoid delay in progress due to a lack of prerequisites. A statement of admission requirements is included in part 2 of this catalog.

Students who contemplate entering the College of Engineering with advanced standing from junior colleges or other institutions should include as many freshman and sophomore requirements listed in the curricula as possible.

Calculus, physics, and the various engineering science courses are prerequisites to many advanced courses and their omission will delay graduation.

Students who have completed three years of work at an accredited four-year college which offers their students a 3 + 2 option may transfer to the College of Engineering at the University of Idaho if they: (1) have above a 2.00 grade point average, (2) are eligible to continue their academic work at the institution they have attended, and (3) have the approval of the institution they have been attending to complete the work for a nonengineering baccalaureate degree which will be awarded by that institution upon receiving a baccalaureate degree from the College of Engineering at the University of Idaho.

A junior engineering student must have at least a 2.00 grade point average before being permitted to register in upper-division courses offered by the College of Engineering.

Scholarships and Awards

Many scholarships and awards are available to engineering students and prospective students. See "Financial Aids" and "Special Awards" in the student services section of part 2 for more information.

Courses of Study and Degrees

The College of Engineering includes the degree-granting departments of Agricultural, Chemical, Civil, Electrical, and Mechanical Engineering. Each department offers courses in the major phases of engineering pertinent to its particular field. Careful attention is given to curriculum content and educational philosophy to keep all programs attuned to the rapidly changing concepts and technology of engineering. All curricula are accredited by the Engineers Council for Professional Development.

First degree, four-year programs lead to the Bachelor of Science in all departments, i.e., Bachelor of Science in Agricultural Engineering, Bachelor of Science in Chemical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Electrical Engineering, and Bachelor of Science in Mechanical Engineering.

The Bachelor of Science programs are designed to prepare the student either for immediate entry into the profession as an engineer-in-training or for graduate study. All freshmen take the same program; the sophomore program is the same for all departments with the exception of two courses which are specified by the departments. The student may postpone a final decision on a branch of study until as late as the beginning of the junior year 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. Interdepartmental activities are designed to lead the student to an awareness of the interrelationships among all practice fields in the execution of modern complex engineering work.

The impact of the vast technological development of recent years has resulted in an increasing interaction between society and engineering. Recognition of this fact has led to emphasis on subjects in the humanities and social sciences. A program leading concurrently to a Bachelor of Arts degree in the College of Letters and Science and a Bachelor of Science degree in one of the engineering branches can be arranged by extending the humanistic and social science studies. Such double degree programs normally require five years to complete and are subject to the provisions of regulation "J-7" (Second Baccalaureate Degree) in part 3 of this catalog.

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. are also offered in nuclear engineering through the facilities at INEL in Idaho Falls. The requirements for graduate degrees are outlined in the catalog of the Graduate School.

Honors Program

An honors program in engineering is available to qualified students. It provides an opportunity for the exceptionally able undergraduate student to cultivate his or her talents through additional challenge and stimulation. Honors students have an opportunity to pursue their degree field in greater depth or to pursue related and interdisciplinary studies. The program is flexible to meet the interests of individual students.

Students may enter the honors program as early as the second semester of the freshman year; normally entry will be at the second semester of the freshman year or during the sophomore year. Students must maintain a 3.30 cumulative grade point average to remain in the program.

Entrance to the program is gained upon application and acceptance by the College of Engineering Honors Committee. Further information may be obtained from the dean.

Faculty

The faculty is the key to the quality of the engineering program. The faculty of each depart-

ment and their individual academic backgrounds are noted in other sections of the catalog. With few exceptions, the faculty members hold advanced engineering degrees; fifty 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 of Science* is common.

A distinguishing feature of the faculty is a unique blend of academic and practical experience. Many of the faculty have extensive experience in practice and bring this experience into the classroom. This is very valuable in preserving balance between theoretical and practical aspects of engineering.

Facilities

The teaching and research facilities of the College of Engineering are among the finest in the country.

Work is centered in the block-square engineering complex which includes the Allen S. Janssen Engineering Classroom Building and the J. E. Buchanan, J. Hugo Johnson, and Henry F. Gauss Engineering Laboratories. These facilities are supplemented by the agricultural engineering and isotope laboratories at other locations on the campus. In total, more than 175,000 square feet of floor space are available for the special use of the College of Engineering.

Of particular interest is the J. E. Buchanan Engineering Laboratory. This laboratory, costing $2 ¼ million to construct and equip, was completed in 1968. It houses all of the chemical and civil engineering laboratories and part of the agricultural and electrical engineering laboratories. It also includes the regional materials laboratory of the Idaho Department of Highways. The laboratories include the most modern equipment for teaching and research. Some of the equipment is of advanced design found in only a few institutional laboratories.

Work with the computer is required of all engineering students. The university's IBM 370 145 digital computer is used for classroom and research problems. Various types of smaller computers are available in the engineering laboratories.

Standing and Advantages

The University of Idaho College of Engineering is a fully accredited, recognized center for undergraduate and graduate engineering education. Since 1896, when it granted its first degrees, the college has awarded several thousand bachelor's degrees in engineering; its graduates now are 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 attests to the reputation of the University of Idaho engineering program.

The size of the college is near the median of engineering colleges in the country. It is not so large that importance of the student as an individual is lost; it is large enough to support the faculty and facilities needed for top quality education.

Balanced 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 personally 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.

Requirements for Graduation

Each of the five degree curricula requires a total of 128 semester credits.

FIRST AND SECOND YEAR COURSES COMMON TO ALL CURRICULA

General university requirements in English composition and physical education, plus:

Course	Credits
Chem 111 Principles of Chemistry	4
Chem 114 General Chemistry	4
EE 200 Systems & Circuits I	3
Engr 101 Engineering Graphics	2
Engr 120-121 Engr. Analysis & Design I-II	4
Engr 131 Digital Computer Programming	2
ES 211 Introduction to Mechanics	4
Math 180, 190, 200 Analytic Geom & Calc	11
Math 310 Ordinary Differential Equations	3
Phys 221 Engr Physics II—Elec & Magnet	3
Phys 222 Engr Physics III—Wave Motion	3
Electives from humanistic-social science	9

The curriculum beyond the freshman and sophomore courses common to all curricula for each department is summarized below. Each curriculum contains various 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 in a field of study other than the student's major. Courses such as Math 140, Phys 111, etc., which are taken to remove deficiencies, may not be used to fulfill minimum elective requirements.

AGRICULTURAL ENGINEERING (B.S.Ag.E.)

First and Second Years	Credits
Courses common to all curricula	57
ES 221 Dynamics of Rigid Bodies	2
Agric or biol science electives	3
Undesignated electives	1
Third and Fourth Years	
AgE 342 Agricultural Engr Analysis	3
AgE 351 Hydrology	2
AgE 352 Fund of Irrig & Drainage	4

AgE 372 Agricultural Machines	3
AgE 449 Elem of Structural Engr	4
AgE 461 Environmental Systems	3
AgE 462 Elec Power & Processing	3
AgE 471 Energy Conv in Ag Systems	2
AgE 491-492 Seminar	0
CE 322 Hydraulics	2
EE 314 Electronics & Control Systems	4
ES 320 Fluid Mechanics	3
ES 321 Thermo & Heat Transfer	3
ES 340 Mechanics of Materials	3
Agric or biol science electives	3
Humanistic-social science electives	9
Statistics electives	3
Technical electives	8
Undesignated electives	3

CHEMICAL ENGINEERING (B.S.Ch.E.)

First and Second Years	Credits
Courses common to all curricula	57
ChE 200 Sophomore Seminar	0
Third and Fourth Years	
ChE 323 Material & Energy Balances	3
ChE 326 Chem Engr Thermo	3
ChE 330 Stagewise Operations	3
ChE 344 Automatic Process Control	3
ChE 423 Reactor Kinetics & Design	3
ChE 430-431 Trans & Rate Process I-II	7
ChE 453-454 Chem Proc Anal & Design	6
ChE 491-492 Seminar	0
Chem 277-372 Organic Chem I-II	6
Chem 305-306 Physical Chemistry	6
Chem 307-308 Physical Chemistry Lab	2
Econ 251 Principles of Economics	3
EE 314 Electronics & Control Systems	4
ES 320 Fluid Mechanics	3
ES 321 Thermo & Heat Transfer	3
Engineering science electives	3
Mathematics electives	3
Humanistic-social science electives	4
Technical electives	3
Undesignated electives	3

CIVIL ENGINEERING (B.S.C.E.)

First and Second Years	Credits
Courses common to all curricula	57
CE 211 Engineering Measurements	4
ES 221 Dynamics of Rigid Bodies	2
Third and Fourth Years	
CE 321 Hydrology	2
CE 322 Hydraulics	2
CE 342 Theory of Structures	4
CE 345 Structural Design	3
CE 357 Mech Prop of Materials	3
CE 372 Transportation Engr	4
CE 431 Sanitary Engineering	4
CE 460 Soil Mechanics	3
CE 486 Engineering Economy	3
CE 491-492 Seminar	0
ES 320 Fluid Mechanics	3
ES 321 Thermo & Heat Transfer	3
ES 340 Mechanics of Materials	3
Eng 317 Tech & Engr Report Writing	3
Approved basic science electives	3
Approved statistics electives	3
Technical electives	11
Humanistic-social science electives	9

ELECTRICAL ENGINEERING (B.S.E.E.)

OPTION I

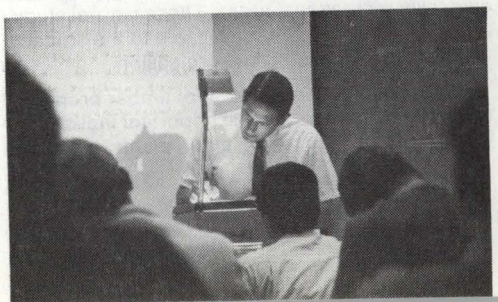
First and Second Years	Credits
Courses common to all curricula	57
EE 201 Transients in Linear Systems	4
EE 203 Systems & Circuits II	4
EE 292 Sophomore Seminar	0
Third and Fourth Years	
EE 310 Electronics I	5
EE 320 Electrical Machinery	5
EE 330 Electromagnetic Theory	4
EE 410 Electronics II, *or* 420 Direct Energy Conv, *or* 421 Power System Anal	3
EE 440 Digital System Engr	3
EE 452 Communication Systems	4
EE 470 Control Systems	4
EE 480-481 Principles of Design	6
EE 491-492 Senior Seminar	0
Phys 360 Intro to Modern Physics	3
Humanistic-social science electives	9
Technical electives	6
Engineering science electives	6
Undesignated electives	6

OPTION II (COMPUTER SCIENCE)

First and Second Years	Credits
Courses common to all curricula	57
EE 201 Transients in Linear Systems	4
EE 240 Digital Computer Fundamentals	3
EE 292 Sophomore Seminar	0
Third and Fourth Years	
EE 203 Systems & Circuits II	4
EE 310 Electronics I	5
EE 440 Digital Systems Engr	3
EE 445 Computer Prog Systems	3
EE 446 System Model & Sim	3
EE 449 Analog & Hybrid Comp	2
EE 470 Control Systems	4
EE 480-481 Principles of Design I-II	6
EE 491-492 Senior Seminar	0
Math 205 Intro to Computer Prog	3
Math 305 Computer Org & Prog	3
Basic science electives	3
Computer science electives	6
Engineering science electives	6
Humanistic-social science electives	9
Technical electives	3
Undesignated electives	2

MECHANICAL ENGINEERING (B.S.M.E.)

First and Second Years	Credits
Courses common to all curricula	57
ES 221 Dynamics of Rigid Bodies	2
ME 261 Engineering Materials	4
Third and Fourth Years	
Econ 272 Found of Econ Analysis	4
EE 314 Electr & Control Systems	4
ES 320 Fluid Mechanics	3
ES 321 Thermo & Heat Transfer	3
ES 340 Mechanics of Materials	3
ME 223 Intro to Mech Design	2
ME 253 Materials Processing	3
ME 320 Fluid Mechanics Lab	1
ME 322 Applied Thermodynamics	3
ME 324 Mechanical Design I	3
ME 390 Mech Engr Anal, *or* ES 402 Appl Num Methods	3
ME 425 Mechanical Design II	4
ME 426 Mech System Design	4
ME 445 Heat Transfer	4
ME 491 Design Seminar	1
ME 492 Seminar	0
Approved basic science electives	3
Humanistic-social science electives	3
Technical electives	14



College of Forestry, Wildlife and Range Sciences

John H. Ehrenreich, Dean (202 Forestry, Wildlife and Range Sciences Bldg.); Ernest D. Ables, Associate Dean; Ali A. Moslemi, Associate Dean; Kenneth M. Sowles, Assistant to the Dean; Steven R. Peterson, Secretary of the College Faculty.

PROFESSIONAL EDUCATION leading to a degree in forestry was instituted at the University of Idaho in 1909. To the initial curriculum in forest management have been added those in wood utilization (1914), range (1917), wildlife (1942), fisheries (1951), and wildland recreation management (1974). These programs have been administered by a department, 1909-1917; by the School of Forestry, 1917-1953; by the College of Forestry, 1953-1963; and, beginning in 1963, by the College of Forestry, Wildlife and Range Sciences.

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 resource science and management. Each of the curricula offered by the college, therefore, assures the student an acquaintance with the physical, biological, and social sciences and the humanities. This establishes a broad basis of general education and at the same time provides the student with the preparation needed for the scientific-professional courses dealing with the use of forest and range lands and related resources.

Advantages of Location

The University of Idaho is ideally located for preparing students in the several professional fields described below. Forest and range lands comprise ninety percent of the state's area. Virgin and cut-over forested areas extend from the ponderosa pine type in southern Idaho to the mixed coniferous and famous white pine types of northern Idaho. Range lands used by domestic livestock and big game vary from spring-fall and winter ranges in the sagebrush-grass and bunchgrass to summer ranges in several of the forested zones. Also within the forest and range lands are found hundreds of lakes and streams and extensive wilderness areas, all of which provide habitat for fish and wildlife.

The values derived from these resources include wood products of all types, cattle and sheep in great numbers, abundant wildlife of many species, game fishes of world renown, water for domestic use, power and irrigation, and extensive recreational areas. These natural study areas and resources are available to the student in preparing for his or her profession.

In addition, the preparation of timber products constitutes the second most important industry in Idaho. Large sawmills, pulp plants, logging camps, and woodworking plants are located throughout the area. These operations provide facilities for study of nearly every phase of the wood products industries. Production of range livestock creates a business enterprise of major importance in the state. Students have an opportunity to study this business on nearby ranches.

Facilities

The college moved into a new $3,500,000 building in 1971. The Forestry, Wildife and Range Sciences Building brings together the faculty, the classrooms and laboratories, the scientific equipment and plant and animal collections necessary for the highest quality instruction. Supporting courses for students in this college are offered in modern, well-equipped classrooms and laboratories of the seven other colleges of the university.

A tract of some 7,000 acres of forest land located about twenty-five miles from the campus is used as a demonstration and experimental area. A forest nursery of forty acres is maintained for the production of planting stock for reforestation, erosion control, wildlife food and cover, and windbreak plantings, as well as for student training purposes. Shattuck Arboretum, with over sixty species of trees, is maintained on campus for studies in dendrology and silviculture. A permanent summer camp is located on the shore of Payette Lake in the mountains of west-central Idaho, and a wilderness field research station is located in the heart of the Idaho primitive area. Furthermore, the forest and range lands constitute a vast natural laboratory for students in all aspects of the college's curriculum.

Standing of the College

The Society of American Foresters, founded in 1900, is the professional organization of foresters in the United States. In order to promote high professional standards in forestry education, the society, in cooperation with the various regional accreditation associations, periodically evaluates the forestry schools and rates them as accredited or not accredited. Forestry education at the University of Idaho has always received accredited status. This accreditation assures the student that high quality education is provided in all divisions of the university and guarantees an unexcelled professional preparation at both the undergraduate and graduate levels in this college. The College of Forestry, Wildlife and Range Sciences was reaccredited in 1974.

Admission Requirements

General. For a statement of admission requirements, see part 2 of this catalog.

Transfer Students. Students who propose to complete a portion of their undergraduate studies at a junior college, or elsewhere, before entering the University of Idaho, should follow as

closely as possible one of the programs for the first two years as set forth in the pages immediately following. A student whose program does not closely approximate this one will find it impossible to graduate in a total of four years. Transfer to the university before the end of the sophomore year is usually to the student's advantage. Correspondence with the dean of the college should be initiated not later than April 1 of the year in which the student wishes to transfer.

Total time to graduation will also be extended if summer camp, in those curricula which require it, is not completed at the end of the sophomore year. Students planning to elect one of these curricula may report directly to summer camp for their initial registration in the university; however, it is advisable to transfer no later than the spring semester of the sophomore year in order to obtain courses that are prerequisite to summer camp. Students who transfer directly to summer camp must complete a minimum of one additional semester in residence at the University of Idaho before credit in summer camp courses will be validated for transfer to another institution. Enrollment in summer camp may be limited to the capacity of the camp facilities and equipment available. The university may exercise its prerogative to refuse surplus applications.

Undergraduate Program

The undergraduate curricula are designed to provide both a general and a professional education. During the first two years, all students in the college follow similar schedules. The objective in these years is to give the student a good foundation in the biological, physical, and social sciences and in speaking and writing skills.

For the third and fourth years, each student chooses a curriculum in a particular field of resource management. The curricula are: fishery resources, forest resources (in which the student has a further choice among options which emphasize management, business, or science), range resources, wildland recreation management, wildlife resources, and wood utilization.

The schedule of studies for each of the curricula provides for a high degree of commonness among them and yet ensures that professional educational requirements are met in subject matter areas. Flexibility and individuality of programs are provided not only by the choice among the curricula, but also by the number of elective credits included in each of them. It is intended that, by judicious use of these elective opportunities, the student will augment the breadth of his or her education. Provision is also made for advanced military training leading to a commission in the Army, Air Force, Navy, or Marine Corps, if desired.

The knowledge required to manage and utilize effectively all of the forest, range, wildlife, and fishery resources is so extensive that no one can completely master it in four years. This is the reason for the separation of the college's overall program into the various curricula. The field of resource management corresponding to each curriculum has attained professional status, that of forestry being the oldest and most mature among them. Others, like range, wildife, fishery management, and recreation, though younger, are growing rapidly and attracting considerable attention.

A discussion of career opportunities in the fields of natural resource management for which the college prepares its graduates is contained in a publication which may be obtained by writing to the dean of the College of Forestry, Wildlife and Range Sciences.

Graduate Program

Programs leading to advanced degrees are offered in each of the fields represented by the undergraduate curricula of the college. Both the master's and the doctor's degree, with emphasis on the conduct of a research project and the preparation of a thesis or dissertation, are available. A nonthesis master's degree, intended primarily for candidates with professional experience, may also be obtained.

Excellent facilities and opportunities are afforded for graduate study and research in the subject-matter areas. Research in the college is organized through the Forest, Wildlife and Range Experiment Station, which includes on its staff all members of the college faculty. Research is also supported by the Cooperative Wildlife Research Unit, the Cooperative Fishery Unit, and the Intermountain Forest and Range Experiment Station.

Assistantships and fellowships are available to assist highly qualified students in their graduate programs. Funding is obtained from a variety of state, federal, and private agencies.

More complete information on graduate studies may be secured by writing the dean of the Graduate School and requesting the catalog of that division.

Requirements for Graduation

University Requirements. See regulation "J" in part 3 for general university requirements for degrees.

College Requirements. A total of 136 semester credits is required for the baccalaureate degree in this college. A minimum cumulative grade point average of 2.00 in all courses attempted in the College of Forestry, Wildlife and Range Sciences is required for graduation. Students in the science option of forest resources must maintain an overall grade point average of 2.5 or higher, on an academic year basis, to remain in the program. Admission to the forest resources

science option is by petition upon completion of at least sixteen semester hours of college work. Courses in the college that are numbered above 299 are not open to any student who is on academic probation. Specific course requirements are set forth below for each curriculum.

Students who are admitted without the required one unit of high school physics (see the admission requirements listed in part 2) must take either Physics 113 or 114, regardless of whether or not physics is listed as a requirement in the chosen curriculum.

The faculty of the College of Forestry, Wildlife and Range Sciences may grant substitutions and waivers of the requirements specified below. Thus, for a student with special aptitudes or interests, a program can be devised which will provide a foundation for advanced study or research, or meet other acceptable and well-defined career objectives.

All elective selections are subject to the approval of the faculty adviser and the dean. Of the indicated electives, at least twelve credits are to be chosen from approved social science or humanities courses.

Summer Camp or Summer Employment Requirements. Students who elect the forest resources or range resources curricula are required to complete the eight-credit course program offered at summer camp. They are expected to complete this requirement before commencing the technical-professional course work of their upper-division programs. Majors in wildland recreation management must complete either an eight-credit summer camp program or a three-credit internship.

Students who elect the fishery, forest products/forest business, or wildlife curricula are expected to complete at least one summer of experience in employment deemed by the faculty to be appropriate to their respective professional career objectives.

FIRST AND SECOND YEAR COURSES COMMON TO ALL CURRICULA

Course	Credits
Biol 201 Intro to Life Sciences	4
Biol 203 General Botany	4
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
FWR 101 Forestry Orientation	1
Math 180 Analytic Geom & Calc I	4
Physical education activities	2

FISHERY RESOURCES (B.S.Fish.Res.)

First and Second Years	Credits
Courses common to all curricula	21
Biol 202 General Zoology	4
Biol 331 General Ecology	3
Chem 103 Intro to Chemistry	4
Chem 275 Carbon Compounds	3
Econ 272 Foun of Econ Analysis	4
FWR 294 Models for Resource Dec I	3
Geol 101-102 Phys Geol & Lab	4
Phys 113-114 General Physics	6
Sp 131 Fundamentals of Speech	2
Electives	15

Third and Fourth Years

Bact 250 General Bacteriology	4
Biol 351 General Genetics	3
FWR 307 Biometry	3
FWR 314 Wildlife Ecology	2
FWR 351 Elem of Range Mgmt, *or* FWR 370 Prin of Forest Mgmt, *or* FWR 462 Watershed Mgmt	2-3
FWR 411 Ichthyology	4
FWR ID413 Fish Ecology	2
FWR 415 Limnology	3
FWR 417 Fish Culture & Diseases	4
FWR 418 Fishery Mgmt Techniques	3
FWR 442 Fish & Wildlife Mgmt	3
FWR 494 Models for Res Dec II	3
Zool 414 Cell Physiology, *or* Zool 416 Mammalian Physiology	3-4
Electives	26-28

FOREST RESOURCES (B.S.For.Res.)

A. MANAGEMENT OPTION

First and Second Years	Credits
Courses common to all curricula	21
Bot 241 Systematic Botany	3
Chem 103 Intro to Chemistry	4
CE 218 Elem Survey & Photo	3
Econ 251-252 Principles of Economics	6
FWR 221 Silvics	3
FWR 294 Models for Resource Dec I	3
Communications electives	2
Computer electives	2
Geography *or* geology (physical)	4
Electives	13

Forestry Summer Camp

FWR 300 Forest Resource Measure	4
FWR 301 Wildland Ecology	4

Third and Fourth Years

Eng 317 Tech & Engr Report Writing	3
FWR 307 Biometry	3
FWR 320 Dendrology	3
FWR 331 Intro to Wood Technology	3
FWR 351 Elem of Range Management	3
FWR 390 Prin Fish & Wildl Ecol	3
FWR 424 Silviculture	3
FWR 434 Forest Engr & Harvesting	3
FWR 474 Mensuration	3
FWR 476 Forest Regulation & Finance	3
FWR 483 Economics of Conservation	3
FWR 484 Forest Policy & Admin	3
FWR 494 Models for Resource Dec II	3
Soils 205 General Soils	3
Multiple-use course	2
Protection course	2
Electives	18

B. SCIENCE OPTION

First and Second Years	
Courses common to all curricula	21
Biol 202 General Zoology	4
Bot 241 Systematic Botany	3
Chem 111 Principles of Chemistry	4
Chem 112 Inorg Chem & Qual Anal	5
Econ 251-252 Principles of Economics	6
FWR 221 Silvics	3
FWR 294 Models for Resource Dec I	3
Communications electives	2
Computer electives	2
Geography *or* geology (physical) *or* organic chemistry	4
Electives	7

Forestry Summer Camp

FWR 300 Forest Resource Measure	4
FWR 301 Wildland Ecology	4

Third and Fourth Years

FWR 307 Biometry	3
Professional courses	15
Quantitative sciences	7
Natural sciences	17
Electives	22

RANGE RESOURCES (B.S.Range Res.)

First and Second Years	Credits
Courses common to all curricula	21
Biol 331 General Ecology	3
Bot 241 Systematic Botany	3
Chem 103 Intro to Chemistry	4
Chem 275 Carbon Compounds	3
CE 218 Elem Survey & Photo	3
Econ 251 Principles of Economics	3
Econ 252 Prin of Econ, *or* AgEc 208 Prin of Farm & Range Mgmt, *or* AgEc 391 Ag Business Mgmt	3
FWR 294 Models for Resource Dec I	3
Geol 101, 102 Physical Geol & Lab	4
Soils 205 General Soils	3
Communications electives	2
Computer electives	2
Electives	7

Forestry Summer Camp

FWR 300 Forest Resource Measure	4
FWR 301 Wildland Ecology	4

Third and Fourth Years

Anl 305 Principles of Nutrition	3
Anl 321 *or* ID322 Beef *or* Sheep Science	3
Bot 311 Plant Physiology	3
Bot 432 Plant Ecology	3
FWR 307 Biometry	3
FWR 351 Elem of Range Management	3
FWR 370 Prin of Forest Management	2
FWR 390 Prin Fish & Wildl Ecol	3
FWR 452 Range Communities	3
FWR 453 Range Methods & Techniques	3
FWR 454 Range Improv & Mgmt Plng	3
FWR 455-456 Integr Range Res Mgmt	8
FWR 483 Econ of Conservation, *or* AgEc 451 Land Resource Econ	3
FWR 494 Models for Resource Dec II	3
Soils 454 Soil Devel & Classification	3
Electives	15

WILDLAND RECREATION MANAGEMENT (B.S. Wildland Rec.Mgmt.)

First and Second Years	Credits
Courses common to all curricula	21
Bot 241 Systematic Botany	3
Chem 103 Intro to Chemistry	4
CE 218 Elem Survey & Photo	3
Econ 251-252 Principles of Economics	6
FWR 221 Silvics	3
FWR 287 Prin of Wildland Rec Mgmt	2
FWR 294 Models for Resource Dec I	3
Geog 100 Man's Physical Environ, *or* Geol 101, 102 Phys Geol & Lab	4
Soc 110 Intro to Sociology, *or* Psych 100 Intro to Psychology	3
Sp 131 Fundamentals of Speech	2
Computer electives	2
Electives	8

Forestry Summer Camp

FWR 300 Forest Resource Measure	1
FWR 301 Wildland Ecology	4
FWR 302 Wildland Rec Field Studies	3

Third and Fourth Years

Eng 317 Tech & Engr Report Writing	3
FWR 307 Biometry	3
FWR 320 Dendrology	3
FWR 385 Wildland Rec Mgmt	3
FWR 386 Wildland Rec Planning	3
FWR 390 Prin Fish & Wildl Ecol	3
FWR 483 Economics of Conservation	3
FWR 484 Forest Policy & Admin	3
FWR 487 Wildland Rec Interp Meth	3
FWR 494 Models for Resource Dec II	3
Soc 313 Collective Behavior, *or* Psych 320 Social Psychology	3
Sp 362 Comm & Small Group	3
Approved electives from one of the following areas: recreation interpretation-communication; recreation management-administration; recreation resources planning-design	12
Electives	16

WILDLIFE RESOURCES (B.S.Wildl.Res.)

First and Second Years	Credits
Courses common to all curricula	21
Biol 202 General Zoology	4
Biol 331 General Ecology	3
Bot 241 Systematic Botany	3
Chem 103 Intro to Chemistry	4
Chem 275 Carbon Compounds	3
Econ 251-252 Prin of Econ, *or* Econ 272 Foun of Econ Analysis	4-6
FWR 294 Models for Resource Dec I	3
Geog 100 Man's Physical Environ, *or* Geol 101, 102 Phys Geol & Lab	4
Phys 113-114 General Physics	6
Sp 131 Fund of Speech	2
Communications electives	2
Computer electives	2
Electives	7

Third and Fourth Years

Biol 351 General Genetics	3
FWR 307 Biometry	3
FWR 314 Wildlife Ecology	2
FWR 351 Elem of Range Mgmt	3
FWR 370 Prin of Forest Mgmt	2
FWR 411 Ichthyology	3
FWR 415 Limnology	3
FWR 442 Fish & Wildlife Mgmt	3
FWR 448 Fish and Wildlife Population Ecology	3
FWR 483 Econ of Conservation	3
FWR 494 Models for Resource Dec II	3
FWR 495 Fish & Wildlife Seminar	1
Zool 416 Mammalian Physiology	4
Zool 482 Natural History of Birds	3
Zool 483 Natural History of Mammals	3
Electives	26

WOOD UTILIZATION (B.S.Wood Util.)

A. FOREST BUSINESS MANAGEMENT OPTION

First and Second Years	Credits
Courses common to all curricula	21
Acctg 201 Principles of Accounting	3
Acctg 202 Managerial Accounting	3
Bot 241 Systematic Botany	3
Bus 221 Marketing	3
CE 218 Elem Surveying and Photogrammetry	2
Econ 251-252 Principles of Economics	6
FWR 221 Silvics	3
FWR 294 Models for Resource Decisions I	3
Communications electives	2
Computer electives	2
Electives	17

Third and Fourth Years

Bus 311 Intro to Management Theory	3
Bus 312 Industrial Management	3
Bus 365 Business Law	3
Bus 413 Human Relations in Business	3
Eng 313 or 317 Business Writing *or* Technical and Engineering Report Writing	3
FWR 307 Biometry	3
FWR 331 Intro to Wood Technology	3
FWR 375 Air Photo Interp of Renew Nat Res	2

(Continued on next page)

FWR 434 Forest Engineering and Harvesting 3
FWR 474 Mensuration 3
FWR 483 Economics of Conservation 3
FWR 494 Models for Resource Decisions II 3
Electives 33

Note: A student may choose as an area of emphasis either forest resources or wood products. Depending on that choice, his/her program will include (appropriate) directed electives. In addition, students choosing forest resources must attend summer camp, and students choosing wood products must obtain the equivalent of two summers of work experience and submit written reports covering that experience.

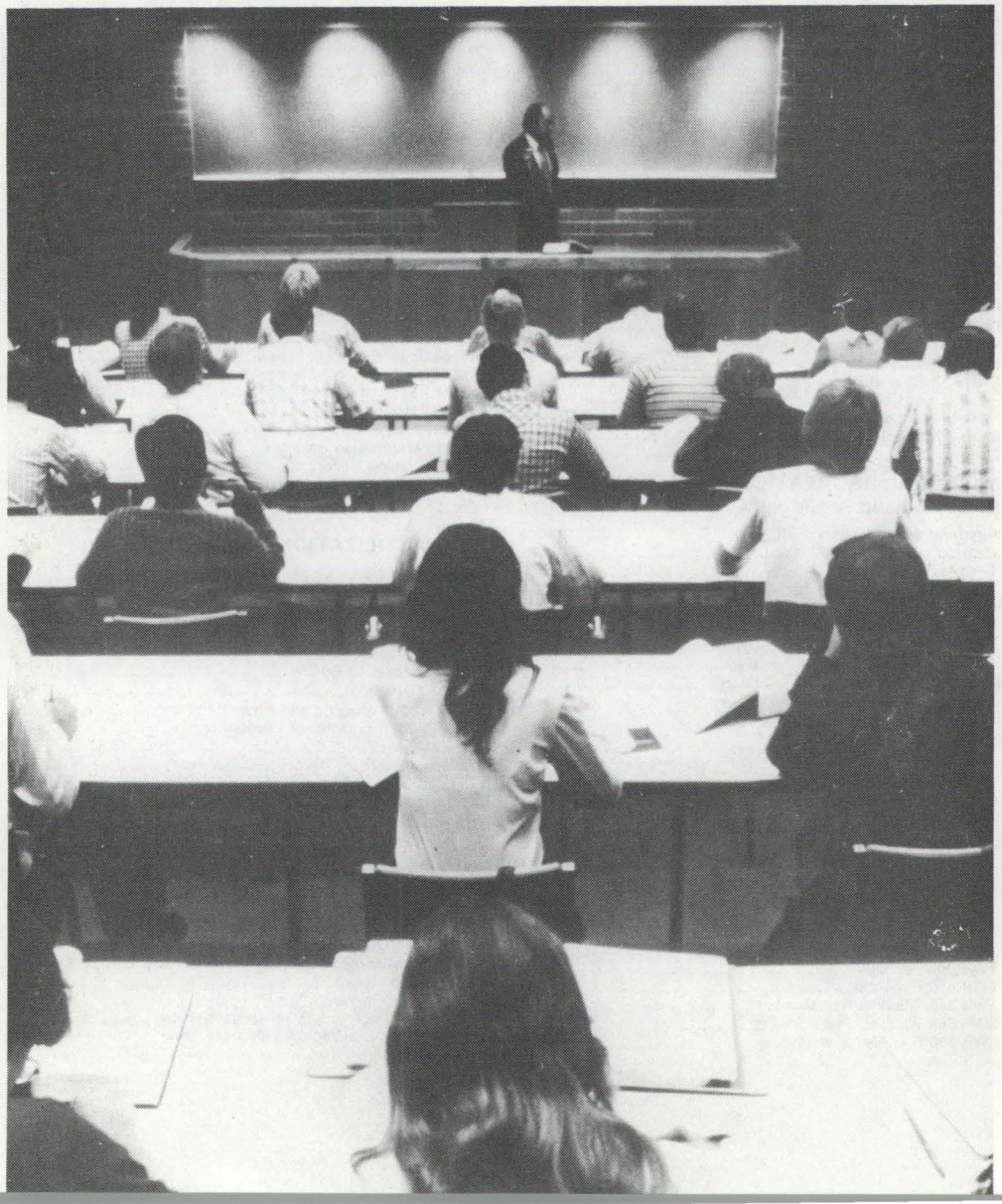
B. SCIENCE-ENGINEERING OPTION

First and Second Years

Courses common to all curricula 21
Chem 111 Principles of Chemistry 4
Chem 114 General Chemistry 4
Chem 277, 278 Organic Chem I & Lab 4
Econ 251-252 Principles of Economics 6
FWR 221 Silvics 3
FWR 294 Models for Resource Dec I 3
Math 190 Anal Geom & Calc II 4
Phys 220-221 Engr Physics I-II 6
Communications electives 2
Computer electives 2
Electives 9

Third and Fourth Years

Chem 372 Organic Chemistry II 3
ES 211 Intro to Mechanics 4
ES 340 Mechanics of Materials 3
Eng 317 Tech & Engr Report Writing 3
FWR 307 Biometry 3
FWR 331 Intro to Wood Technology 3
FWR 370 Prin of Forest Management 2
FWR 434 Forest Engr & Harvesting 3
FWR 436 Biol Properties of Wood 3
FWR 437 Physical Properties of Wood 3
FWR 438 Chemical Properties of Wood 3
FWR 464 Forest Pathology 2
FWR 474 Mensuration 3
FWR 483 Economics of Conservation 3
FWR 494 Models for Resource Dec II 3
FWR 496 Forest Products Seminar 1
Electives 25



College of Law

Albert R. Menard, Dean (101 Law Bldg.); Sheldon A. Vincenti, Associate Dean.

THE COLLEGE OF LAW was established as a college of the University of Idaho in 1909. It 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 with the whole range of society. The curriculum is designed to provide instruction in basic principles generally applicable in the United States, rather than to focus on matters of local importance only. The responsibilities assumed by the professional man or woman are emphasized, as are ethical problems. The study of law, while essential to individuals who intend to practice, also serves as a valuable asset to those who desire to pursue positions of leadership in government or business.

Methods of instruction are adapted to development in each student of his or her highest potential and vary with the professor and the course. Basically, instruction is accomplished by way of the case system, a study of the actual decisions of appellate courts, supplemented by selected readings which provide insight into the nature of judicial and legislative process. Problem and seminar methods are utilized in advanced courses. Stress is placed upon techniques which encourage individual initiative and develop perceptive and communicative powers. Clinical training in the third year provides contact with clients who have legal problems. Law changes rapidly, so mere accumulation of information is subordinated to the more important ends of individual development and training in scientific habits of thought. The atmosphere and situation of the College of Law, now housed in a new building, enable the faculty to concentrate upon attention to the individual student.

Admission to the Bar

A degree from the University of Idaho College of Law satisfies the legal educational prerequisite for the taking of any bar examination in the United States. However, prelegal requirements may vary slightly and inquiry should be made of the secretary of the bar examiners in the state in which the applicant intends to practice to determine the existence of special requirements.

Prelegal Work

The subject matter of prelegal education is in general less important than the quality of work done and the caliber of the professors under whom the work is taken. Students preparing to enter law school should avoid courses which are not demanding and take those which will develop their powers of analytical thought. Intensive work will enable them to acquire the intellectual discipline and experience necessary for success in law school. Students should aspire to a critical appreciation of values and of political, economic, and social institutions: they should stress understanding, not just knowledge, in their studies. Words are the tools of the lawyer and a major undergraduate objective in the selection both of courses and of activities outside the classroom should be development of the ability to communicate orally and in writing.

Usually an undergraduate major in one of the social sciences or in business administration is best, but students with other backgrounds ranging from agriculture to engineering or physics are accepted. While study of accounting is not a prerequisite for admission to the College of Law, it is highly recommended that prelaw students gain some understanding of the fundamentals of this area. As a general rule, the introductory course on a college level is quite sufficient and any further study of accounting should be undertaken only if the student has rather specifically defined career objectives, such as the holding of a CPA certificate as well as a law degree. Another useful skill is the ability to operate a typewriter with reasonable speed and accuracy.

Prelaw advisers are generally available to guide students in selecting courses within the particular college or university which will meet these objectives. The faculty of the College of Law is also available for consultation or assistance in program planning.

Requirements for Admission

Applicants for admission must have a bachelor's degree from an accredited four-year college or university. Their cumulative grade point average must place them in the upper one-half of the college class and they should present a Law School Admission Test score which is well above the national median. Exceptions will be made to the requirement of a bachelor's degree in rare instances and admission extended to carefully selected students who are enrolled in "combined degree programs" (see below).

The Law School Admission Test is required of all applicants. This test is given by the Educational Testing Service at a large number of places throughout the United States in October, December, February, April, and July, at a cost fixed by that organization. Arrangements for taking the test must be made by the individual applicant directly with the Educational Testing Service in advance of the dates set for the test. The exact dates and places for the test, application blanks, and a bulletin of information about the test may

be obtained by writing directly to Law School Admission Test, Educational Testing Service, Box 944, Princeton, New Jersey 08540, or to the College of Law, University of Idaho. Applicants cannot be assured of consideration unless they take the test no later than the December administration preceding the fall semester in which they desire admission.

Registration with the Law School Data Assembly Service of the Educational Testing Service is required of all applicants. Instructions concerning registration and an application blank for the purpose are contained in the same bulletin which describes the Law School Admission Test or may be secured separately from the College of Law or the Educational Testing Service.

Procedure for Admission. All applicants must: (1) secure from the dean of the College of Law a personnel form and an application form, complete them and return them to the College of Law together with a check for the mandatory $10.00 evaluation fee; (2) take the Law School Admission Test and have sent to the College of Law a score report; and (3) register with the Law School Data Assembly Service of the Educational Testing Service, directing that the file and analysis which that agency prepares be forwarded to the College of Law. Transcripts required by the instructions on the registration blank of the Law School Data Assembly Service should be forwarded to that service promptly, but additional copies need not be sent to the College of Law until a specific request is made for them.

An opinion concerning admissibility will be given to applicants in this category after receipt by the College of Law of the personnel and application blanks, the evaluation fee, the LSAT score from the Educational Testing Service, and the file, with analysis, from the Law School Data Assembly Service. Further instructions on the remaining steps which must be taken to convert this opinion, if favorable, into an admission will be given with the letter transmitting the opinion, and will require the filing of additional information with the University Admissions Office and the forwarding of official transcripts. If the applicant is determined to be admissible and then complies with the additional instructions sent, he or she will receive credentials permitting registration from the Admissions Office. Applicants will be saved much inconvenience if all their credentials are received in sufficient time for the settlement of any question through correspondence. Applications should be initiated no later than early December prior to the fall term in which the student intends to register.

Admission to Advanced Standing

Students who have previously studied law in a law school which is either a member of the Association of American Law Schools or is approved by the American Bar Association may be admitted only if they are in complete good standing and eligible to continue in the school in which previously registered and if, in the opinion of the Committee on Admissions, academic performance at that institution warrants such action. Usually the committee requires substantially above a 2.50 grade point average on all law courses undertaken. There must also be space available to accommodate the student, and this has not existed in some years. When space is available, priority is accorded transfer applicants who are residents of Idaho. If entrance by transfer is granted, the number of credits to be recognized from the previous institution is determined by the dean of the College of Law in each individual case. The last twenty-six semester credits of law must be completed in residence at the University of Idaho.

Nondegree Candidates

Students who are not admitted as candidates for the Juris Doctor degree are not accepted by the College of Law.

Combined Degree Programs

As has already been stated, applicants for admission to the College of Law must have a bachelor's degree from an accredited four-year college or university. Exceptions to this requirement may be made in very rare instances and admission extended to one or two carefully selected students who demonstrate unusual capacity for legal study on the basis of their college record (above 3.25) and LSAT score (above 625) and who are enrolled in a "combined degree program" which will award the student a bachelor's degree upon the successful completion of the first year of law study. The combined degree program must include ninety-eight semester credits of undergraduate work before the taking of any work in a college or school of law. Such a program is offered at the University of Idaho through the Department of Political Science of the College of Letters and Science. A student at the University of Idaho who is interested in a combined degree program should seek an adviser through the Department of Political Science.

Combined programs also exist at certain other institutions which also agree to grant the necessary bachelor's degree after one year of law study. Students not at the University of Idaho should consult appropriate individuals at their undergraduate college to determine if a bachelor's degree from the institution may be earned in this manner and be sure that they will meet all needed requirements before entering the College of Law. It is not wise, however, to make long-range plans relying on admission to the College of Law as a combined degree student, because only one or two individuals each year are able to meet the standards for this

category of admission. A combined-degree program is not recommended; it is successfully pursued infrequently.

Fees

Students in the College of Law pay an additional $100.00 per semester over the fees applicable to students in other divisions of the university. This added $100.00 is not charged to students who were in continuous enrollment in the College of Law prior to the 1972-73 academic year.

Honor System

Students in the College of Law are required to participate in the honor system and to sign the honor code which places responsibility for observation of the rules of the college directly on the individual. Examinations are not supervised. Violations of this code are referred to an honor court composed of senior and junior law students.

Academic Requirements

After a student has received final grades on the courses undertaken in the first two semesters of enrollment in the College of Law, he or she must have attained a cumulative weighted grade point average of 2.00 on all hours of law study without regard to their number, and must maintain this average or better for the remaining period of law study. If the cumulative weighted grade point average on all law courses undertaken, computed after filing of grades for these first two semesters or at the close of any semester thereafter, is less than 2.00, the student will be placed on scholastic suspension and will not be eligible to register for further study in the College of Law unless reinstated by the law faculty upon petition.

In addition to the foregoing rule, any student who entered the College of Law in September 1973 or thereafter who achieves a semester grade point average of less than 2.00 for two successive semesters will be placed on scholastic suspension and will not be able to register for further study in the College of Law unless reinstated by the faculty upon petition.

Grading System

1. Grades 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 the basis of P or F.

2. Grade point averages shall be computed by assigning the following numerical point values per semester hour; 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, except that courses in which marks of I, W, or P (pass) have been given shall be disregarded in the computation. All other courses shall be included even if they have been repeated.

3. The grading system described above became effective in 1971. It 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. It is also used on any grade reports issued by the College of Law. Plus or minus grades do not appear on transcripts issued by the registrar.

4. Grades in most courses 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.

Requirements for Graduation

The degree of Juris Doctor (J.D.) will be awarded to students who complete six semesters of study or its equivalent in time in residence in an accredited college of law and secure eighty-four semester hours of law credit with a grade point average of 2.00 (C) on all work undertaken. At least eighty of these hours must be earned in regular classroom work. All eighty-four semester hours offered for the degree must be completed within a total period of six calendar years from the time of initial matriculation to the completion of degree work. The last twenty-six semester credits of law must be completed in residence at the University of Idaho unless a waiver is granted by the law faculty upon petition. Students admitted to the College of Law with advanced standing must maintain the same average on all work taken here as that required for graduation. The courses of the first year are required for graduation.

Curriculum

The course of study covers three academic years. The prescribed first year is required of all students. Students in the second and third years normally take approximately fourteen to fifteen semester credits each semester from the courses listed. No part of the curriculum may be taken in advance of approval of admission to an accredited college of law and students not in the University of Idaho College of Law may register for a course offered by the college only with the permission of the dean and the instructor. Such courses cannot be credited toward a law degree and do not qualify a student to take bar examinations.

(Continued on next page)

University of Idaho

REQUIRED FIRST-YEAR LAW COURSES

	Credits
805-806 Procedure I-II	6
807-808 Property I-II	6
809-810 Torts I-II	5
811 Fundamentals of Public Law	2
812 Criminal Law and Procedure	3
813-814 Contracts I-II	6
815-816 Legal Research Wrtg I-II	2
	—
	30

SECOND-YEAR LAW COURSES

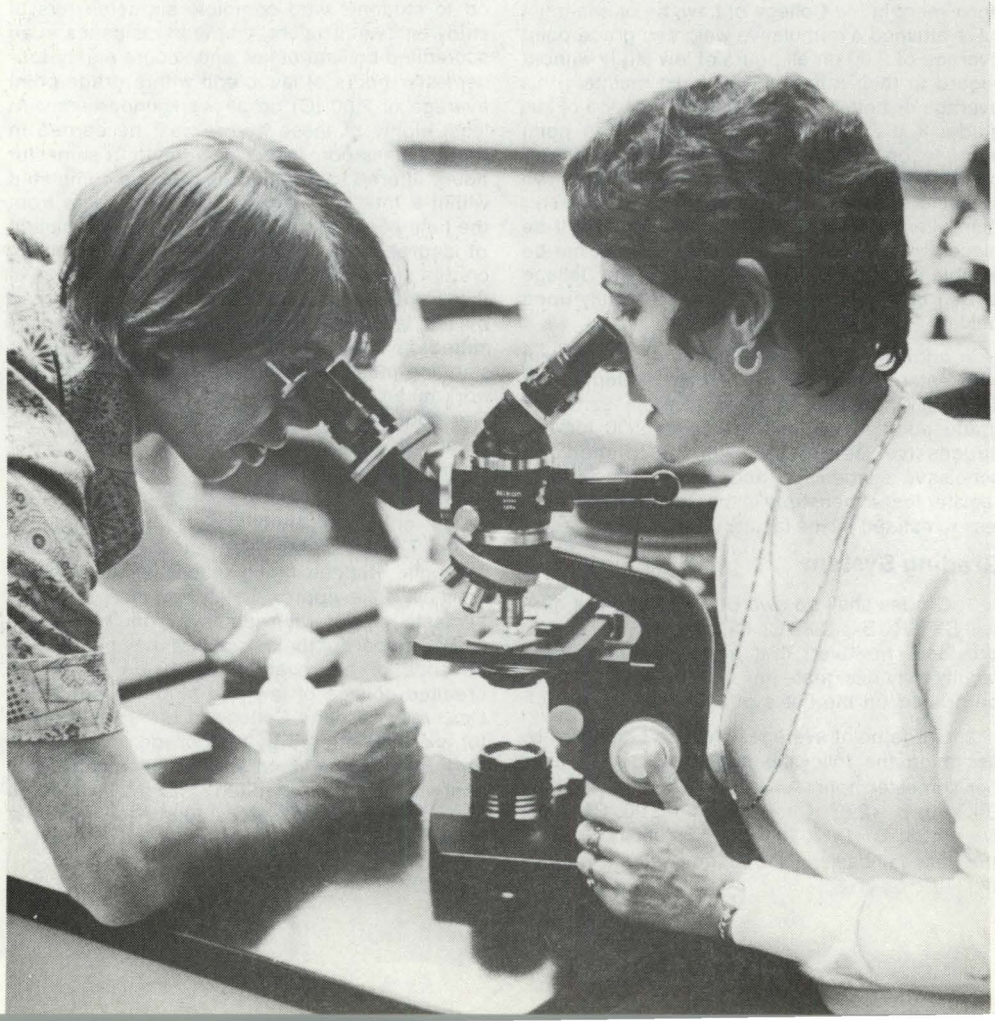
Fourteen to sixteen hours each semester chosen from the following:

Course	Credits
905 Const Law & Fed System I	4
906 Const Law & Fed System II	3
907 Administrative Law	3
908 Labor Law	2
920 Business Associations	4
923 Commercial Paper	2
926 Creditor's and Debtor's Rights	3
930 Taxation I	3
941 Wills, Estates, and Trusts	3
942 Natural Resources	3
943 Seminar, Real Estate Plng	3
945 Community Property	2
950 Evidence	4
952 Remedies and Restitution	3
956 Appellate Court	1-2
963 Family Law	2

THIRD-YEAR LAW COURSES

Thirteen to fifteen hours each semester chosen from the following courses not previously taken:

Course	Credits
906 Const Law & Fed System II	3
907 Administrative Law	3
908 Labor Law	2
910 Antitrust and Trade Regulation	3
911 Municipal Corporations	2
912 Legislation	2
922 Corporate Securities	3
925 Sales & Secured Transactions	3
926 Creditor's and Debtor's Rights	3
927 Seminar, Business Planning	2
931 Taxation II	2
932 Estate Planning	4
942 Natural Resources	3
943 Seminar, Real Estate Plng	3
944 Seminar, Land Use & Environ Plng	3
945 Community Property	2
952 Remedies and Restitution	3
953 Seminar, Criminal Procedure	2
954 Practice Court I	1
955 Practice Court II	1
960 Conflict of Laws	3
961 Seminar, Jurisprudence	2
962 Professional Responsibility	1
963 Family Law	2
981 Legal Aid	2
982 Law Review	1-3
983 Legal Research	1-4



College of Letters and Science

Elmer K. Raunio, Dean (112 Admin. Bldg.); John L. McMullen, Associate Dean; Elizabeth E. Stevenson, Assistant Dean; Earl J. Larrison, Secretary of the College Faculty.

THE COLLEGE FOF LETTERS AND SCIENCE is the oldest division of the university, having been established in 1900. 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 the College of Letters and Science are the departments of Art and Architecture, Biological Sciences, Chemistry, English, Foreign Languages and Literatures, History, Mathematics, Philosophy, Physics, Political Science, Psychology, Sociology/Anthropology, and Theatre Arts. The School of Music, the School of Communication (Journalism, Photography, Radio/Television, and Speech), and the School of Home Economics also function as departments of the college. Cooperating departments from other divisions include the departments of Bacteriology and Biochemistry, Economics, Geography, and Naval Science, as well as the College of Law. The foregoing departments and schools in the college offer nearly one hundred curricula and curricular options leading to baccalaureate degrees, as well as graduate study leading to master's and doctor's degrees.

Undergraduate. See "Major Curricula" in this section for the undergraduate programs available in the College of Letters and Science.

Graduate. The Graduate School offers work toward advanced degrees in many disciplines of the college. Currently work leading to a master's degree is available in the fields of anthropology, architecture, art, biological sciences, biology, botany, chemistry, English, French, German, history, home economics, interior design, mathematics, music, philosophy, physical sciences, physics, political science, psychology, social sciences, sociology, Spanish, 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 advanced and graduate programs in part 1. An interinstitutional doctoral program with a major in home economics (family and child development) is being developed.

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 which are not provided for by any of the established curricula in the college.

Interdisciplinary Studies. Students who have broad educational goals which 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.

Preparatory Programs in Medicine and Dentistry. Premedical and predental programs are offered in the college and are presently administered by the Pre-Medical and Pre-Dental Studies Committee. For baccalaureate programs in these fields, see "Major Curricula" in this catalog section.

Environmental Sciences. The university does not offer a separate degree program in environmental sciences; however, students who wish to prepare themselves for careers in this field should consult the L & S dean's office about the possibility of developing an appropriate plan of studies under the major in interdisciplinary studies.

Museology. The college offers an unusual opportunity to juniors and above to become acquainted with museums and museum work. Courses in museology serve as museum appreciation courses for the general student regardless of his or her major field and as an introduction to museum work for the student who plans to enter this field professionally.

Admission to the College

Students who expect to enter the College of Letters and Science 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 admission requirements, see part 2 of this catalog. Graduates of four-year, accredited high schools ordinarily are eligible for admission to the College of Letters and Science.

Regular Enrollment in a Program of Studies

A student in the College of Letters and Science must enroll in a regular program unless he or she is attending on a part-time basis (seven-credit maximum), or is admitted to a nondegree program. Except for the two-year program in predental studies, and the one- and two-year programs in prenursing studies, a regular program is one that leads to a degree which 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 the College of Letters and Science who are preparing for secondary-school teaching should consult the information on the Teacher Education Program in this part 4 (following the College of Mines section).

General Requirements for Graduation

Each student working toward a baccalaureate degree from the College of Letters and Science must satisfactorily complete a total of 128 semester credits (unless a higher number is specified in the particular curriculum), including at least thirty-six credits in courses numbered 300 and above, the all-university requirements in English composition and physical education (see regulation "J" 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 below. The requirements for the various professional degrees (i.e., B.Arch., B.F.A., B.Mus., B.N.S., B.Phys., B.S.H.Ec., B.S.Pre-Dent., B.S.Pre-Med., and B.Tech.) are listed below in the section headed "Major Curricula." 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 insure 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 Bachelor of Arts Degree

Humanities (12 credits minimum). At least four courses, including two from each of the following categories: (1) literature, philosophy, and courses which treat theatre arts or speech as literature; and (2) courses which deal with the history or appreciation of art, architecture, music, speech, or theatre arts.

Science (9 credits minimum). At least three courses (including one or more laboratory courses) to be taken in two or more of the following areas, one of which is to be in either of the first two categories: (1) life sciences, (2) physical sciences, (3) mathematics, and (4) approved courses dealing with science.

Social Sciences (9 credits minimum). At least three courses to be taken in two or more of the following fields: (1) anthropology, (2) economics, (3) geography, excluding physical geography and cartography, (4) history, (5) political science, (6) psychology, excluding Psych 205 and the more physiologically oriented courses, (7) social science, (8) sociology, (9) Museo ID301, and (10) Sp 141 and 180.

Foreign Language (0 to 16 credits). The basic requirement is proficiency 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) sixteen credits or four high-school units in one foreign language, or (2) twelve credits in one foreign language, plus one three-credit course in literature translated from the same language. The twelve credits may be satisfied by three high-school units in one foreign language.

Requirements for the Bachelor of Science Degree

Humanities (9 credits minimum). At least three courses, including one course in literature, philosophy, or courses which treat theatre arts or speech as literature, plus one course which deals with the history or appreciation of art, architecture, music, speech, or theatre arts.

Science (same as the science requirement for the B.A. degree).

Social Sciences (same as the social science requirement for the B.A. degree).

Progress in Satisfying These Requirements. Students must 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 must take courses in fulfillment of the foreign-language requirement as early as possible. If they cannot do this during the first semester, they must immediately take a course that can be used in partial fulfillment of the science-mathematics requirement.

Honors

Honors are awarded at graduation from the College of Letters and Science on the basis of each student's entire academic record, but are

granted only to those who have completed at least the last sixty-four credits in residence (see general academic regulation "J-2-a" in part 3 of this catalog). The minimum grade point average required for graduation with honors in a given year is 3.50 *or* the minimum grade point average of the upper ten percent of the students who graduated from the College of Letters and Science during the previous *calendar* year, whichever is higher. Similarly, students whose grade point average at least 3.90 *or* as high as or higher than the minimum grade point average of the upper three percent of the students who graduated from the College of Letters and Science during the previous calendar year will be graduated *summa cum laude*. All other students eligible for honors will be graduated *cum laude*. For students graduating with honors during the 1976 calendar year, the minimum grade point averages are 3.57 for graduation *cum laude* and 3.90 for graduation *summa cum laude*. These will be refigured for the 1977 calendar year.

Major Curricula

Selection of a Major. Each student should select a major curriculum not later than the beginning of the junior year. Lower-division students who have not decided upon 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 (arranged in alphabetical order in this section).

AMERICAN STUDIES (B.A.)

Note: At least thirty credits of the total for the program and at least fifteen credits of the electives must be courses numbered 300 and above.

General requirements for the B.A. degree, plus:

Course	Credits
American literature *or* American history (primary area)	18
American literature *or* American history (secondary area)	9
English literature (if primary area is American literature) *or* European history (if primary area is American history)	6
Related areas I: courses dealing with American civilization (any three of the following)	9
Anthr 120 Intro to Social Anthr	
Econ 435 Amer Economic Devel	
Geog 362 United States & Canada	
Phil 425 American Philosophy	
PolSc 428 Amer Political Thought	
Related areas II: supporting courses (selected from the following)	12
Anthr 120 Intro to Social Anthr	
Anthr 225 Aboriginal N Amer Indian	
Anthr 322 Racial & Ethnic Relations	
Anthr 325 Indians of Idaho	
Anthr 435 North Amer Prehistory	
Arch 155 Design & Creative Process	
Arch 483 Intro to City Planning	
Arch 484 City Planning	
Comm 120 Mass Comm in a Free Soc	
Comm 455 Hist of Mass Comm	
Comm 490 Law of Mass Comm	
Comm 492 Mass Comm & Pub Opin	
Econ 251-252 Principles of Econ	
Econ 430 Regional Economics	
Econ 435 Amer Econ Development	
Econ 441 Labor Economics	
Geog 265 Cultural Geography	
Geog 362 United States & Canada	
Geog 430 Urban Geography	
Inter 493-494 Urban Studies	
MusH 410 Historical Survey of Jazz	
Phil 201 Ethics	
Phil 415-416 Contemp Philosophy	
Phil 425 American Philosophy	
PolSc 101 American Government	
PolSc 275 Amer State Government	
PolSc 276 Amer Local Government	
PolSc 428 Amer Political Thought	
PolSc 431 Political Parties	
PolSc 432 The Legislative Process	
PolSc 438 Conduct of Amer For Policy	
PolSc 467 Constitutional Law	
Psych 320 Intro to Social Psychology	
RelSt 323 Religion & Society	
Soc 230 Social Problems	
Soc 310 Rural Sociology	
Soc 311 Urban Sociology	
Soc 214 Modern Social Theory	

Note: In electing courses for the related areas sections (totaling 21 cr), the student must elect at least one course from four of these areas: political science, economics, geography, sociology-anthropology, and philosophy and acquire no more than nine credits in any one area.

ANTHROPOLOGY (B.A. or B.S.)

General requirements for either the B.A. or B.S. degree, plus:

Course	Credits
Anthr 110 Intro to Phys Anthr & Archaeology	3
Anthr 120 Intro to Social Anthr	3
Anthr 402 History of Anthr Theory	3
Eng 441 Intro to Study of Lang	3
Psych 217 Intro to Stat for Behav Sc or equiv	3
Soc 110 Intro to Sociology	3
Soc 413 Early Social Theory, *or* 414 Modern Social Theory	3
Anthropology electives (upper-division)	15
Related fields to include at least three courses selected from among the following	15
Econ 490 Comp Economic Systems	
Geog 140 Economic Geography	
Hist 433 Soc & Cul Hist of US	
Hist 434 Soc & Cul Hist of US	
Museo ID301 Intro to Museology	
Phil 411 Social Philosophy	
Psych 320 Intro to Social Psychology	
Psych 461 Psych of Personality	
Soc 320 Marriage & the Family	
Soc 321 The Community	
Soc 420 Social Stratification	
Soc 421 Population & Human Ecology	

ARCHITECTURE (B.Arch.)

A five-year professional curriculum divided into two parts: preprofessional (first two years) and professional (remaining three years). A cumulative grade point average of 2.50 in all required courses in the two preprofessional years and the approval of a faculty review committee are required for admission to the professional program. Grades are subject to faculty review and any probation, if granted, shall be at the discretion of the faculty. The 2.50 average must be maintained in all required courses in order to remain in good standing in the department.

Course	Credits
Arch 155-156 Design & the Creative Process	4
Arch 253 Basic Design Review (required of transfers only)	2

(Continued on next page)

Arch 255 Graphic Communication	2
Arch 256 Basic Architectural Design	2
Arch 259 Landscape Architecture I	3
Arch 266 Materials & Methods	3
Arch 353-354 Architectural Design I	10
Arch 365-366 Building Technology I	6
Arch 383 Environmental Analysis	2
Arch 385-386 History of Architecture	6
Arch 453-454 Architectural Design II	10
Arch 455-456 Architectural Design III	10
Arch 463-464 Environmental Control Systems	6
Arch 465-466 Building Technology II	6
Arch 473 Architectural Programming	2
Arch 475-476 Professional Practice I-II	6
Arch 483 Intro to City Planning	3
Art 111-112 Drawing I	4
Art 121-122 The Creative Process & Design	4
CE 112 Elementary Surveying	2
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Math 140 College Algebra	3
Math 179 Circular Functions for Calculus	1
Math 180 Analytic Geom & Calc I (or one of the following options)	2-5
Ag 321 Biometry	
Bus 231 Statistics	
Bus 439 Systems & Simulation	
Math 184 and 440 Linear Algebra (a sequence)	
Math 184 and 461 Linear & Higher Algebra (a sequence)	
Phil 211 Logic	
Psych 217 Intro to Stat for Behav Sci	
Phys 113-114 General Physics	6
Physical education activities	2
Electives to total 160 cr for the degree (at least four cr must be from art; twelve cr must be from at least two of the following fields: anthropology, economics, geography, history, philosophy, political science, psychology, and sociology; ten cr must be chosen from an adviser-approved list of electives and twenty-one cr [nineteen for transfer students] of free electives)	—

ART (B.A. or B.F.A.)

Students working toward the B.A. degree in art must complete the general L & S requirements for that degree. Students working toward the B.F.A. degree substitute the following for the L & S general requirements:

B.F.A. GENERAL REQUIREMENTS

Course	Credits
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Literature electives	3
Physical education activities	2
Science electives	8
Social science electives	12

ART CORE PROGRAM

The following core is taken by students working toward either the B.A. or B.F.A. degree:

Course	Credits
Arch 155-156 Design & Creative Process	4
Arch 385-386 History of Architecture	6
Art 101-102 Survey of Art	4
Art 111-112 Drawing I	4
Art 121-122 Creative Process & Design	4
Art 211-212 Drawing II	6
Art 231-232 Painting I	4
Art 241-242 Three-Dimensional Design	4
Art 301-302 History of Painting	6
Art 400 Seminar: Art History	2
Art 497 Senior Proseminar	2

Plus completion of either the general option or one of the special options specified below:

A. GENERAL OPTION

Course	Credits
Art 223 Graphic Design I	2
Art 233-234 Water Color I	4
Art 261-262 Ceramics I	4
Art 271-272 Jewelry I	4
Art 351-352 Printmaking	4

B. SPECIAL OPTIONS

The special options are divided into two parts: the preprofessional (first two years) and the professional (remaining two years). Students wishing to enter one of the special options begin their program in the general art option. At the end of the sophomore year, or beginning of the junior year, the student may make application to the art faculty for admission to one of the special options. Students accepted by the art faculty will follow one of the options listed below during the junior and senior years. Students not accepted to the special option program will remain in the general art option. Admission to one of the special options requires:

a. A cumulative grade point average of 2.50 in all 100-level and 200-level art and architecture courses in the art core programs. Grades are subject to faculty review and any probation, if granted, shall be at the discretion of the art faculty. The 2.50 average must be maintained in all art and architecture courses to remain in good standing in the special options.

b. A portfolio of the student's work showing general preparation for the special option; the student should clearly demonstrate competency in the specific option area.

c. A written statement by the student clearly explaining reasons for wishing to pursue one of the special options.

d. A recommendation from at least one member of the art faculty, preferably a faculty member from the specific option area.

1. **Design.** The art core program plus:

Course	Credits
Art 223-224 Graphic Design I	4
Art 233-234 Water Color I	4
Art 323-324 Graphic Design II	6
Art 351-352 Printmaking	4
Art 423-424 Graphic Design II	6
Bus 323 Principles of Advertising	3

2. **Sculpture.** The art core program plus:

Course	Credits
Art 261-262 Ceramics I	4
Art 271-272 Jewelry I	4
Art 341-342 Sculpture I	8
Art 351-352 Printmaking	4
Art 441-442 Sculpture II	8
Art 463 Senior Thesis (sculpture)	4
Art 499 Directed Study (sculpture)	8

3. **Painting.** The art core program plus:

Course	Credits
Art 233-234 Water Color I	4
Art 311-312 Drawing III	4
Art 331-332 Painting II	6
Art 351-352 Printmaking	4
Art 431-432 Painting III	6
Art 463 Senior Thesis (painting)	4
Art 499 Directed Study (painting)	8

4. **Ceramics.** The art core program plus:

Course	Credits
Art 261-262 Ceramics I	4
Art 361-362 Ceramics II	6
Art 363-364 Clay & Glaze Form	4
Art 461-462 Ceramics III	6
Art 463 Senior Thesis (ceramics)	4
Art 465 Ceramic Problems	8
Art 499 Directed Study (ceramics)	4

5. **Jewelry.** The art core program plus:

Course	Credits
Art 261-262 Ceramics I	4
Art 271-272 Jewelry I	4
Art 351-352 Printmaking	4
Art 371-372 Jewelry II	8
Art 463 Senior Thesis (jewelry)	4
Art 471-472 Jewelry III	8
Art 499 Directed Study (jewelry)	8

6. **Art Education.** The art core program plus:

Course	Credits
Three of the following sequences	12
Art 223-224 Graphic Design I	
Art 233-234 Water Color I	
Art 261-262 Ceramics I	

(Continued on next page)

Art 271-272 Jewelry I	
Art 351-352 Printmaking	
Art 391 *or* 392 Crafts in Art Education, *or* 362 Ceramics II, *or* 371 Jewelry II, *or* HEc 314 Weaving	2-3
Ed 314 Strategies for Teaching	2
Ed 319 Sec School Art Methods	2
Ed 431, *or* 431 and 435 Practicum	9
Ed 445 Proseminar in Teaching	1
Ed 468 Contemporary Education	3
Psych 205 *or* Ed 415 Developmental or Educational Psych	3
Approved art electives	10

Note: Students electing the art education option take Psych 100, Introduction to Psychology, and at least one course in either American history or American government as part of the general college requirements for social science.

BACTERIOLOGY (B.S.)

General requirements for the B.S. degree, plus:

Course	Credits
Bact 250 General Bacteriology	4
Bact 304 Pathogenic Bacteriology	3
Bact 305 Pathogenic Bacteriology Lab	2
Bact 400 Seminar	2
Bact 409 Immunology	3
Bact 410 Immunology Lab	2
Bact 499 Directed Study	3
Biol 201 Intro to the Life Sciences	4
Biol 202 Gen Zool, *or* 203 Gen Bot	4
Chem 111 Principles of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal	5
Chem 253 Quantitative Analysis	5
Chem 277, 278 Organic Chem I & Lab	4
Chem 372, 374 Organic Chem II & Lab	4
Eng 317 Tech & Engr Report Writing	3
Math 111-112 Fund of Math	8
Phys 113-114-115-116 Gen Phys & Lab	8
Electives (upper-division), which may include any of the following strongly recommended courses	10
Bact 402 Food & Appld Microbiology	
Bact 414 Clinical Lab Methods	
Bact 425 Soil & Aquatic Micro	
Biol 351-352 Gen Genetics & Lab	
Chem 480 Elements of Biochemistry	
Chem 481-482 Biochemistry	

BACTERIOLOGY: MEDICAL TECHNOLOGY (B.S.)

General requirements for the B.S. degree, plus:

Course	Credits
Bact 250 General Bacteriology	4
Bact 304 Pathogenic Bacteriology	3
Bact 305 Pathogenic Bacteriology Lab	2
Bact 400 Seminar	2
Bact 409 Immunology	3
Bact 410 Immunology Lab	2
Bact 414 Clinical Lab Methods	4
Biol 201 Intro to the Life Sciences	4
Biol 202 General Zoology	4
Chem 111 Principles of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal	5
Chem 253 Quantitative Anal	5
Chem 275, 278 Carbon Comp & Lab, *or* 277, 278 Organic Chem I & Lab	4
Eng 317 Tech & Engr Report Writing	3
Math 111 Fundamentals of Math	4

Plus completion of either of the following options:

OPTION A: Twelve months' hospital training in an approved school of medical technology, under a recognized, qualified clinical pathologist is required to qualify for registration with the American Society of Clinical Pathologists. A maximum of thirty-two semester credits can be obtained, following the junior year, for the satisfactory completion of this work in a hospital accredited by the ASCP. Under this plan the student becomes a candidate for the B.S. degree when the internship is completed. Students electing option A must consult the head of the Department of Bacteriology and Biochemistry before the end of their freshman year.

OPTION B: Those students who wish to receive the B.S. degree in the bacteriology: medical technology option B may do so by completing thirty-two credits during the senior year in courses approved by the major adviser and the head of the Department of Bacteriology and Biochemistry. In addition, twelve months' hospital training in an approved school of medical technology, under a recognized, qualified clinical pathologist is required to qualify for registration with the American Society of Clinical Pathologists.

BIOLOGY (B.A. or B.S.)

General requirements for either the B.A. or B.S. degree, plus the following courses (electives are to be chosen in consultation with the departmental adviser).

Course	Credits
Bact 250 General Bacteriology	4
Biol 201 Intro to the Life Sciences	4
Biol 202 General Zoology	4
Biol 203 General Botany	4
Biol 331 General Ecology	3
Biol 351, 352 General Genetics & Lab	4
Biol 361 Biological Literature	1
Bot 311-312 Plant Physiology & Lab	5
Bot 425 Developmental Plant Anatomy	4
Chem 111 Principles of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal	5
Chem 275, 278 Carbon Comp & Lab	4
Math 140 College Algebra	3
Zool 323 Com Embry, *or* 324 Anatomy	4
Zool 414, 415 Cell Physiology & Lab	5

BOTANY (B.A. or B.S.)

General requirements for either the B.A. or B.S. degree, plus the following courses (electives are to be chosen in consultation with the departmental adviser).

Course	Credits
Biol 201 Intro to the Life Sciences	4
Biol 202 General Zoology	4
Biol 203 General Botany	4
Biol 331 General Ecology	3
Biol 351, 352 General Genetics & Lab	4
Biol 361 Biological Literature	1
Bot 311-312 Plant Physiology & Lab	5
Bot 425 Developmental Plant Anatomy	4
Chem 111 Principles of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal	5
Chem 253 Quantitative Analysis	5
Chem 277, 278 Organic Chem I & Lab	4
Chem 372, 374 Organic Chem II & Lab	4
Math 140 College Algebra	3
Math 180 Analytic Geom & Calc I	4
Phys 113-114-115-116 Gen Phys & Lab	8

CHEMISTRY: GENERAL (B.S.)

General requirements for the B.S. degree, plus:

Course	Credits
Chem 111 Principles of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal	5
Chem 253 Quantitative Analysis	5
Chem 277, 372 Organic Chem I, II	6
Chem 278, 376 Organic Chem Lab	3
Chem 305-306 Physical Chemistry	6
Chem 307-308 Physical Chem Lab	2
Chem 409 Proseminar	1
Engr 131 Digital Comp Programming *or* Math 205 Intro to Computer Prog	1-3
Math 180, 190, 200 Anal Geom & Calc	11
Phys 220, 221, 222 Engr Phys	9

This is a subminimal curriculum for students wishing to enter the profession of chemistry, but 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.

General requirements for the B.S. degree, plus:

Course	Credits
Chem 111 Principles of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal	5
Chem 253 Quantitative Analysis	5
Chem 277, 372 Organic Chem I, II	6
Chem 278, 376 Organic Chem Lab	3
Chem 305-306 Physical Chemistry	6
Chem 307-308 Physical Chem Lab	2
Chem 409 Proseminar	1
Chem 454 Instrumental Analysis	4
Chem 463, 464 Inorganic Chem & Lab	4
Engr 131 Digital Comp Programming *or* Math 205 Intro to Computer Prog	1-3
FL/GN 121-122 Elementary German *or* FL/RU 171-172 Elementary Russian	8
Math 180, 190, 200 Anal Geom & Calc	11
Phys 220, 221, 222 Engr Phys	9

Plus two additional chemistry courses having Chem 306 as a prerequisite, or an alternate upper-division course in mathematics or physics in combination with an approved chemistry course.

CHEMISTRY: TECHNICAL LITERATURE (B.S.)

General requirements for the B.S. degree, plus:

Course	Credits
Chem 111 Principles of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal	5
Chem 277, 372 Organic Chem I, II	6
Chem 278, 376 Organic Chem Lab	3
Chem 305-306 Physical Chemistry	6
Chem 307-308 Physical Chem Lab	2
Chem 409 Proseminar	1
Chem 441 Chemical Literature	1
Chem 463 Inorganic Chemistry	3
Engr 131 Digital Comp Programming *or* Math 205 Intro to Computer Prog	1-3
Eng 317 Tech & Engr Report Writing	3
FL/FR 101-102 Elementary French *or* FL/RU 171-172 Elementary Russian	8
FL/GN 121-122 Elementary German	8
FL/GN 223-224 Scientific German *or* FL/RU 271-272 Intermediate Russian	8
Math 180, 190, 200 Anal Geom & Calc	11
Phys 220, 221, 222 Engr Phys *or* Phys 113-114-115-116 Gen Phys & Lab	8-9

CHEMISTRY: TECHNOLOGICAL (B.Tech.)

Note: Students who complete this curriculum will be certifiable to the American Chemical Society.

General university requirements in English composition and physical education, plus:

Course	Credits
Acctg 201 Principles of Accounting	3
Bus 221 Marketing	3
Bus 231 Statistics	4
Bus 365 Business Law	3
Chem 111 Principles of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal	5
Chem 253 Quantitative Analysis	5
Chem 277, 278 Organic Chem I & Lab	4
Chem 305-306 Physical Chemistry	6
Chem 307-308 Physical Chemistry Lab	2
Chem 372, 376 Organic Chem II & Lab	5
Chem 409 Proseminar	1
Chem 454 Instrumental Analysis	4
Chem 463, 464 Inorganic Chem & Lab	4
Econ 170 Contemporary Econ and 272 Foundations of Economic Anal, *or* 251-252 Prin of Economics	6-7
Engr 131 Digital Comp Programming	2
Eng 317 Tech & Engr Report Writing	3
Math 184 Elements of Linear Algebra	2
Phys 220, 221, 222 Engr Physics	9
Sp 131 Fundamentals of Speech	2
Two courses in chemistry which require physical chemistry as prerequisites, *or* one chemistry course as above and one upper-div course in math or physics	6

It is strongly recommended that students take at least one year of German or Russian and ChE 390 (Introduction to Chemical Engineering Principles).

CHILD DEVELOPMENT (B.A. or B.S.H.Ec.)

See School of Home Economics following this College of Letters and Science section.

CLASSICAL STUDIES (B.A.)

General requirements for the B.A. degree, plus:

Course	Credits
Art 101 Survey of Art	2
FL/EN 211-212 Classical Mythology	4
FL/EN 363-364 Survey of Classical Origins	6
FL/GK 341-342 Elementary Greek (or equiv)	8
FL/LA 161-162 Elementary Latin (or equiv)	8
FL/LA 261-262 Interm Latin (or equiv)	8
Phil 101 or 103 Intro to Philosophy	3
Additional Latin and/or Greek courses numbered above FL/LA 262 and FL/GK 342	12

Plus five courses in related fields approved by the major adviser.

CLOTHING, TEXTILES AND DESIGN (B.S.H.Ec.)

See School of Home Economics following this College of Letters and Science section.

COMMUNICATION (B.A. or B.S.)

See School of Communication following this College of Letters and Science section.

ECONOMICS (B.A. or B.S.)

Note: Credits earned in mathematics beyond the stated mathematics requirements will be accepted in satisfaction of the elective requirement in areas other than economics.

General requirements for either the B.A. or B.S. degree, plus:

Course	Credits
Acctg 201 Principles of Accounting	3
Econ 251-252 Principles of Economics	6
Econ 321 Interm Microeconomic Anal	3
Econ 372 Interm Macroeconomic Anal	3
Math 111-112 Fund of Math, *or* Math 140 Coll Alg and 112 Fund of Math, *or* Math 140 Coll Alg and Phil 211 Logic, *or* Math 180 Anal Geom & Calc I	4-8
Statistics electives	3-4
Upper-division credits in economics	18
Upper-division credits from anthropology, geography, history, philosophy, political science, psychology, or sociology (see note above)	15

ENGLISH (B.A.)

Note: Recommended preparation includes Eng 111-112, Literature of Western Civilization, or 175, Introduction to Literature.

Courses taken to satisfy the 36-credit departmental requirement in English must be numbered 267 or above. Where specific courses are listed with the area requirements, the department may approve equivalencies.

General requirements for the B.A. degree, plus:

Course	Credits
Eng 267-268 Survey of English Lit	6
Eng 277 *or* 278 Survey of Amer Lit	3
Eng 435 Shakespeare	3

Area requirements including one course each from six of the areas below 18
- Middle Ages—Eng 433, 434
- Renaissance and 17th Century—Eng 437, 451, 452, 453
- Restoration and 18th Century—Eng 421, 438, 456
- Nineteenth Century British—Eng 422, 465, 466
- American Literature—Eng 470, 471, 472, 474
- Twentieth Century British and American—Eng 426, 427, 428, 439
- Linguistics—Eng 441, 442, 443, 496

English electives from the following or from courses not used in the area requirements list 6
- Eng 400 Seminar
- Eng 425 Irish Literary Ren
- Eng 436 Advanced Shakespeare
- Eng 473 Lit of the Amer West
- Eng 476 American Folklore
- Eng 482-483 Major Authors
- Eng 494 Meth of Lit Criticism (strongly recommended)
- Eng 495 Literary Critism (strongly recommended)

Courses in related fields approved by the chairman of English 20

FRENCH (B.A.)

General requirements for the B.A. degree, plus:

Course	Credits
FL/FR 101-102 Elem French (or equiv)	8
FL/FR 201-202 Interm French (or equiv)	8
Upper-division courses in French lang	20
A second foreign language (elementary and intermediate, or equiv)	16
Related fields (as approved by chairman)	20

GEOGRAPHY (B.A. or B.S.)

General requirements for either the B.A. or B.S. degree, plus:

Course	Credits
Geog 100 Man's Physical Environment	4
Geog 140 Economic Geography	3
Geog 250 World Regional Geography	3
Geog 265 Cultural Geography	3
Geog 380 Cartography	3
Geog 490 Trends in Geography	3
Geol 101, 102 Physical Geol & Lab	4
Geography electives (upper-division)	18
Courses in related fields approved by the Department of Geography	20

GERMAN (B.A.)

General requirements for the B.A. degree, plus:

Course	Credits
FL/GN 121-122 Elem German (or equiv)	8
GL/GN 221-222 Interm German (or equiv)	8
Upper-division courses in German lang	20
A second foreign language (elementary and intermediate, or equiv)	16
Related fields (as approved by chairman)	20

HISTORY (B.A.)

Note: Recommended preparation should include at least six credits from introductory courses in any two other social sciences. The choice of specific courses in each group below must be approved by the student's adviser from the Department of History.

General requirements for the B.A. degree, plus:

Course	Credits
Lower-division history courses selected from the following	12
Hist 101-102 History of Civ	
Hist 111-112 Intro to U.S. History	
Hist 271-272 History of England	
Upper-division history courses	20
Related fields	20

HISTORY (B.S.)

Note: Students expecting to take graduate work in history are strongly urged to take the B.A. rather than the B.S. degree.

Recommended preparation should include at least six credits from introductory courses in any two other social sciences. The choice of specific courses in each group below must be approved by the student's adviser from the Department of History.

General requirements for the B.S. degree, plus:

Course	Credits
Lower-division history courses selected from the following	12
Hist 101-102 History of Civ	
Hist 111-112 Intro to U.S. History	
Hist 271-272 History of England	
Upper-division history courses	20
Related fields	20
Plus any combination of the following	12
Any foreign language (high-school foreign language may be substituted at the rate of four cr per year)	
FL/EN 313-314 Mod French Lit in Trans	
FL/EN 323-324 German Lit in Trans	
FL/EN 363-364 Surv of Classical Origins	
FL/EN 373-374 Russian Lit in Trans	
FL/EN 393-394 Spanish Lit in Trans	
Eng 387 Modern European Lit	

HOME ECONOMICS AND HOME ECONOMICS EDUCATION (B.S.H.Ec.)

See School of Home Economics following this College of Letters and Science section.

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 approved by: (a) at least one faculty member from each of the participating departments of the university, one of which must be in the College of Letters and Science, (b) the chairman of one of the L & S departments involved, and (c) the L & S Committee on Interdisciplinary Studies. The College of Letters and Science 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 chairman of the Interdisciplinary Studies Committee for further information about this program.

INTERIOR DESIGN (B.F.A.)

Course	Credits
Arch 155-156 Design & Creative Process	4
Arch 266 Materials & Methods	3
Arch 299 Directed Study	1
Arch 351-352 Interior Design I	6
Arch 353-354 Arch Design I	10
Arch 361 Interiors & Materials	3
Arch 362 Furniture Design & Constr	3
Arch 383 Environmental Analysis	2
Arch 385-386 History of Architecture	6
Arch 451-452 Interior Design II	6
Arch 461 Interior Systems & Constr	2
Arch 472 Prof Practice of Int Design	2
Arch 474 Sem: Prob in Envir Dsgn	2
Arch 499 Directed Study	2
Art 101-102 Survey of Art	4
Art 111-112 Drawing I	4
Art 121-122 Creative Proc & Design	4

(Continued on next page)

Art 223-224 Graphic Design I	4
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
HEc 123 Textiles	3
HEc 314 Weaving	3
HEc 426 Hist of Interiors & Furn	3
Math 111-112 Fundamentals of Math	8
Psych 100 Intro to Psychology	3
Art electives	12
Physical education activities	2
Electives to total 128 cr for the degree	—

JOURNALISM (B.A. or B.S.)

See School of Communication following this College of Letters and Science section.

LANDSCAPE ARCHITECTURE (B.L.Arch.)

Landscape architecture, one of several design/planning professions, is the art and science of integrating man's activities (development) with the environment to produce a desirable result or effect. Landscape architects, as part of a planning team, become involved in the site design of such projects as subdivisions, golf courses, ski areas, college campuses, parks, highway rest areas, urban malls, and campgrounds. At the regional scale their involvement centers around resource inventories, evaluations, and development plans for such projects as wild rivers, reservoirs, wilderness areas, and national parks.

Course	Credits
Arch 155-156 Design & Creative Process	4
Arch 259-260 Landscape Arch I	11
Arch 269-270 Landscape Constr I-II	6
Arch 288 Plant Materials	3
Arch 289 Hist of Landscape Arch	2
Arch 358 Prof Office Practice, LA	2
Arch 359-360 Landscape Arch II	12
Arch 384 Environmental Analysis	2
Arch 388 Plant Materials	3
Arch 459-460 Landscape Arch III	12
Arch 483 Intro to City Planning	3
Arch 484 City Planning	2
Art 111-112 Drawing I	4
Art 121-122 Creative Proc & Design	4
Biol 201 Intro to Life Sciences	4
Biol 203 General Botany	4
Biol 331 General Ecology	3
CE 112 Elementary Surveying	2
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Geog 100 Man's Physical Environment	4
Geol 101, 102 Physical Geol & Lab	4
Geol 335 Geomorphology	3
Math 140 College Algebra	3
Soils 205 General Soils	3
Soils 404 Special Topics: Soil Resources/Land Use Planning	2
Physical education activities	2
Electives to total 136 credits for the degree, of which at least two credits must be from art and twelve must be from at least two of the following fields: anthropology, economics, geography, history, philosophy, political science, psychology, sociology, and forestry	—

LATIN (B.A.)

General requirements for the B.A. degree, plus:

Course	Credits
FL 161-162 Elem Latin (or equiv)	8
FL 261-262 Interm Latin (or equiv)	8
Upper-division courses in Latin	20
A second foreign language (elementary and intermediate, or equiv)	16
Related fields (as approved by chairman)	20

LATIN-AMERICAN STUDIES (B.A.)

General requirements for the B.A. degree, including Spanish for the foreign language requirement, plus:

Course	Credits
FL/SP 384 Hispanic Cul & Institutions	3
FL/SP 387-388 Survey of Span-Am Lit, *or* FL/SP 487-488 Contemp Span-Am Lit	6
Geog 359 Mexico & Middle America	3
Geog 360 South America	3
Hist 435 Colonial Latin America	3
Hist 438 Mexico Since Indep, Cent Am & Carib *or* Hist 439 Nat Lat Am	3
Plus at least six of the following courses (or the optional courses listed above):	
Anthr 320 Peoples of the World	3
Anthr 330 World Prehistory	3
*Econ 477 Econ of Devel Countries	3
Eng 111-112 Lit of Western Civ	6
FL/SP 386 Survey of Spanish Lit	3
Hist 440 Inter-Amer Relations	3
Hist 465-466 Soc & Cul Hist of Europe	6
Phil 411 Social Philosophy	3
PolSc 438 Conduct of Amer For Policy	3
PolSc 440 Inter Org & Inter Law	3
*PolSc 483 Modern & Pol Change	3

*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.

LAW—COMBINED PROGRAM (B.A.-J.D. or B.S.-J.D.)

The B.A. or B.S. degree will be awarded to candidates who complete ninety-eight credits by the end of the junior year (including all general requirements for the B.A. or B.S. and twelve credits in courses numbered 300 or above with the approval of their adviser), as well as the thirty credits in the first year of the law curriculum. Upon satisfactory completion of the law curriculum (see College of Law in the section immediately preceding the College of Letters and Science), the degree of Juris Doctor will be conferred. Students in this combined program enroll in the College of Letters and Science for their first three years and in the College of Law for the final three years. For requirements for entrance into the College of Law under the combined program, see "Combined Degree Programs" in the College of Law section.

Note: The College of Law does not recommend a combined-degree program, and it is successfully pursued infrequently.

MATHEMATICS (B.A. or B.S.)

General requirements for either the B.A. or B.S. degree, plus:

Course	Credits
Phys 220, 221, 222 Engr Phys I, II, III (to acquaint the student with an area in which mathematics is applied; upon the approval of the department, substitution of other courses to meet this objective may be allowed)	9
Math 180, 190, 200 Anal Geom & Calc	11
Math 184 Elements of Linear Algebra	2
Math 186 Theory of Numbers	3
Math 461 Higher Algebra	3
Math 471 Advanced Calculus	3
Math 462 Higher Algebra, *or* 472 Advanced Calculus	3
Mathematics electives in courses numbered above 300, at least six credits of which are in courses numbered above 401 (Math 300, 320, 331, and 332 may not be applied toward this requirement)	12

MATHEMATICS: APPLIED (B.S.)

General requirements for the B.S. degree, plus:

Course	Credits
Engr 131 Digital Computer Prog	2
Math 180, 190, 200 Anal Geom & Calc	11
Math 184 Elements of Linear Algebra	2
Math 205 Intro to Computer Prog	3
Plus one of the following options:	

A. STATISTICS OPTION

Course	Credits
Ag 406 Statistical Research Meth	3
Math 320 Probability & Statistics	3
Math 451-452 Prob Theory & Math Stat	6
Math 471-472 Advanced Calculus	6
At least two courses selected from the following	6
Ag 507 Experimental Design	
Math 305 Comp Org & Prog	
Math 433 Numerical Analysis	
Math 434 Numerical Analysis	
Math 440 Linear Algebra	
Math 485 Struc of Prog Lang	
Math 487 Data Structures	
Math 499 Directed Study	
Approved electives in fields where statistics is applied (not to be in applied statistics courses)	6

B. COMPUTER-PROGRAMMING OPTION

Course	Credits
Math 305 Comp Org & Prog	3
Math 310 Ord Diff Equations	3
Math 431-432 Adv Applied Calculus	6
Math 433-434 Numerical Analysis	6
Math 440 Linear Algebra	3
Math 485 Struc of Prog Languages	3
Math 487 Data Structures	3
At least one course selected from the following	3
Math 320 Prob & Statistics	
Math 451 Prob Theory & Math Stat	
Math 461 Higher Algebra	
Math 471 Advanced Calculus	
Math 482 Adv Applied Math	
Math 490 Intro to Set Theory	

MUSEOLOGY (B.A. or B.S.)

The purpose of this major is to prepare the student for work in a wide range of museums and museum jobs. Museum work requires a theoretical introduction, breadth of education and experience, a variety of technical "know-how," and competency in one or more subject areas. All of this is taken into account in the list of required and elective courses which constitute the major.

General requirements for either the B.A. or B.S. degree, plus:

Course	Credits
One of the following courses	3
Anthr 110 Intro to Phys Anthr & Archaeology	
Anthr 120 Intro to Social Anthr	
Anthr 225 Aboriginal N Am Indian	
Anthr 301 Study of Man	
Anthr 325 Indians of Idaho	
Anthr 330 World Prehistory	
Anthr ID425 Contemporary N Am Indian	
Anthr 427 Peoples of Africa	
Anthr 435 N American Prehistory	
*Arch 155-156 Design & Creative Proc	4
Art 101-102 Survey of Art	4
*Art 121-122 Creative Proc & Design	4
Biol 462 Biol Field & Museum Tech	3
Geog 250 World Regional Geography	3
Hist 433 *or* 434 Soc & Cul Hist of US	3
IEd 140 Wood Tech, *or* 300 Finishing Materials & Methods	2-3
Jour 121 News Writing, *or* 432 Feature Article Writing	3
Museo ID301 Intro to Museology	3
Museo ID400 Seminar	2-3
Museo ID402 Intermediate Museology	3
Museo ID450 Advanced Museology *and/or* ID499 Directed Study	4
OAD 313 Office Management	2
Electives represented at least four different subject areas selected from the courses listed below	12
Ed 428 Audiovisual Aids	
FWR 287 Prin of Wildl Rec Mgmt	
FWR 487 Wildland Rec Interp Meth	
HEc 123 Textiles	
HEc 314 Weaving	
HEc 326 Housing & Home Furnishings	
HEc 426 Hist of Interiors & Furn	
LibSc 420 Class & Cataloging	
Phil 401 Phil of the Arts	
Phil 411 Social Philosophy	
Phil 412 Phil of Science	
Photo 281 Understanding Photo	
Psych 205 Developmental Psych	
Psych 320 Social Psychology	
RadTV 322 Educ Uses of Broadcasting	
RadTV 388 Cinematography for TV	
SocSc 185 *or* 385 Study Tour Abroad	
In addition to the above, electives chosen from *one* of the following museum fields: anthropology, art, botany, elementary education, geology, American history, science and technology, or zoology	12

Students are advised to take additional courses in their special museum field and related areas in order to prepare for museum work. It is also recommended that students take courses from the list of electives in addition to the twelve credits that are required.

*Arch 155 and Art 121 or Arch 156 and Art 122 are to be taken concurrently.

MUSIC AND MUSIC EDUCATION (B.A. or B.Mus.)

See School of Music following this College of Letters and Science section.

NAVAL SCIENCE (B.N.S.)

Course	Credits
Hist 456 Recent Times	3
InfSc 205 Intro to Computer Programming	3
Math 180, 190 Anal Geom & Calc I, II	8
NS 101 Intro to Naval Science	3
NS 102 Ship Systems I	3
NS 201 Ship Systems II	2
NS 202 Sea & Maritime Affairs	2
NS 301 Navigation	3
NS 302 Naval Operations	3
NS 401 Naval Organization & Mgmt	3
NS 402 Naval Leadership	3
Phys 113-114 General Physics	6
Phys 115 *or* 116 Gen Physics Lab	1
PolSc 438 Conduct of Am Foreign Policy	3

The naval science student must complete at least eighty 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 regular baccalaureate degree.

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 chairman of Philosophy.

General requirements for either the B.A. or B.S. degree, plus:

Course	Credits
Phil 201 Ethics	3
Phil 211 Logic	3
Phil 309 History of Ancient Philosophy	3
Phil 310 History of Modern Philosophy	3
Philosophy electives (upper-division)	15
Related fields (humanities, social sciences, and sciences)	20

PHYSICS (B.A.)

General requirements for the B.A. degree, plus:

Course	Credits
Chem 111 Principles of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal, *or* 114 General Chemistry	4-5
Math 180, 190, 200 Anal Geom & Calc	11
Phys 220, 221, 222 Engr Phys I, II, III	9
Phys 321-322 Analytical Mechanics	6
Phys 341-342 Electricity & Magnetism	6
Phys 351 Elementary Quantum Mechanics	3
Phys 360 Intro to Modern Physics	3
Phys 498 Research	1
Additional upper-division physics courses (at least three credits of lab and excluding Phys 304 and 314)	9
Mathematics (upper-division)	6

PHYSICS (B.S.)

General requirements for the B.S. degree, plus:

Course	Credits
Chem 111 Principles of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal, *or* 114 General Chem	4-5
Math 180, 190, 200 Anal Geom & Calc	11
Phys 220, 221, 222 Engr Phys I, II, III	9
Phys 321-322 Analytical Mechanics	6
Phys 341-342 Electricity & Magnetism	6
Phys 351 Elem Quantum Mechanics	3
Phys 360 Intro to Modern Physics	3
Phys 498 Research	1
Additional upper-division physics courses (at least three credits of lab and excluding Phys 304 and 314)	15
Mathematics (upper-division)	6

PHYSICS (B.Phys.)

Course	Credits
Chem 111 Principles of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal, *or* 114 General Chemistry	4-5
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Math 180, 190, 200 Anal Geom & Calc	11
Phys 220, 221, 222 Engr Phys I, II, III	9
Phys 321-322 Analytical Mechanics	6
Phys 341-342 Electricity & Magnetism	6
Phys 351 Elem Quantum Mechanics	3
Phys 360 Intro to Modern Physics	3
Phys 411 Physical Instrumentation	3
Phys 431 Thermo & Kinetic Theory	3
Phys 443 Optics	3
Physics courses (upper-division, excluding Phys 304 and 314)	3
Mathematics (upper-division)	11
Physical education activities	2
Social science electives (anthropology, economics, history, philosophy, political science, or sociology)	6
Plus the equivalent of one year of one of the following modern foreign languages: French, German, Italian, or Russian.	

POLITICAL SCIENCE (B.A.)

General requirements for the B.A. degree, plus:

Course	Credits
PolSc 105 Intro to Political Science	3
Introductory courses in other social sciences	6
Additional political science courses numbered 150 or above (minimum of 20 cr required in upper-div courses; total to include PolSc 435, and at least 3 cr in PolSc 425 or 426)	26
Upper-division related field courses	20

Note: A maximum of 9 cr of political science internship courses may be counted toward meeting the political science cr requirements. Political science courses should be distributed so as to include at least three dealing primarily with American, and at least three dealing primarily with non-American, political processes, ideas, or government. The choice of specific electives must be approved by the department.

POLITICAL SCIENCE (B.S.)

General requirements for the B.S. degree, plus:

Course	Credits
Math 111 Fund of Math, *or* 140 Coll Alg, *or* 180 Anal Geom & Calc I	3-4
PolSc 105 Intro to Political Science	3
Introductory courses in other social sciences	6
Additional political science courses numbered 150 or above (minimum of 20 cr required in upper-div courses; total to include PolSc 435, and at least 3 cr in PolSc 425 or 426)	26
Research methods in the behavioral sciences, statistics, data processing, or computer programming (may be counted as related field cr if upper-div)	5
Upper-division related field courses	20

Note: A maximum of 9 cr of political science internship courses may be counted toward meeting the political science cr requirement. Political science courses should be distributed so as to include at least three dealing primarily with American, and at least three dealing primarily with non-American, political processes, ideas, or government. The choice of specific electives must be approved by the department.

PRE-DENTAL STUDIES (Two-Year Program)

Students planning to apply to a college of dentistry after completing the minimum of two years of college predental education should follow the schedule of courses listed below. (Students not having high school chemistry take Chem 103 in place of Chem 111.)

Course	Credits
Biol 201 Intro to Life Sciences	4
Biol 202 General Zoology	4
Chem 111 Prin of Chemistry	4
Chem 112 Inorg Chem & Qual Anal	5
Chem 277, 278 Organic Chem I & Lab	4
Chem 372, 376 Organic Chem II & Lab	5
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Math 140 College Algebra	3
Phys 113-114-115-116 Gen Phys & Lab	8
Social science electives	6
Physical education activities	2
Electives	2
Recommended elective: Foreign language	8

PRE-DENTAL STUDIES (B.S.Pre-Dent.)

Students in the four-year predental program satisfy the requirements of the premedical curriculum (see below), except that the senior-year option A for predental students reads as follows: Option A—Completion of the first year of dental study at an approved college of dentistry.

PRE-MEDICAL STUDIES (B.S.Pre-Med.)

Students not having high school chemistry take Chem 103 in place of Chem 111. Where electives are specified in the first three years, the following are suggested: Math 180, 190, 200, Analytic Geom & Calc I, II, III, and Phys 220, Engineering Physics I.

FIRST THREE YEARS

Course	Credits
Biol 201 Intro to the Life Sciences	4
Biol 202 General Zoology	4

Chem 111 Principles of Chemistry 4
Chem 112 Inorganic Chem & Qual Anal 5
Chem 253 Quantitative Analysis 5
Chem 277, 278 Organic Chem I & Lab 4
Chem 372, 376 Organic Chem II & Lab 5
Eng 103 Basic Skills for Writing 3
Eng 104 Essay Writing 3
Math 140 College Algebra, *or*
Math 111-112 Fund of Math 3-8
Phys 113-114-115-116 Gen Phys, *or*
221, 222 Engr Physics II, III 6-8
Zool 323 Comp Vertebrate Embry 4
Zool 324 Comp Vertebrate Anatomy 4
Physical education activities 2
Social science electives 6
Electives to complete 96 credits for
the first three years 11-18
Recommended elective:
Foreign language 14-16

SENIOR YEAR

Completion of either of the options below:

Option A—Completion of the first year of medical study at an approved college of medicine.

Option B—Completion of sufficient credits to total 128, including at least thirty-six credits in courses numbered 300 or above, and at least twelve of these upper-division credits must be in the social sciences and/or humanities. One course in mathematics or statistics beyond Math 111-112 or 140. Suggested senior-year electives:

Biol 351 General Genetics 3
Chem 305-306, 307-308 Phys Chem
& Lab, *or* 302, 303 Prin of Physical
Chem & Lab 4-8
Chem 481-482 *or* 480 Biochemistry 3-6
Zool 416 Mammalian Physiology 4
Zool 481 Ichthyology, *or* 488 Parasitology, *or* 489 Herpetology, *or*
414 Cell Physiology 3-4

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 tests, and possession of personal qualifications essential for effective nursing. Requirements of the institution to which the individual will transfer should be investigated by the student to assure inclusion of courses which meet those requirements.

The following programs are suggested for students who plan to transfer to a school of nursing.

ONE-YEAR AND
ONE SUMMER PROGRAM — **Credits**

Bact 250 General Bacteriology 4
Biol 201 Intro to Life Sciences, *or*
Math 140 College Algebra 3-4
Chem 103 Intro to Chemistry, *or*
111 Principles of Chemistry 4
Chem 114 General Chemistry, *or*
275, 278 Carbon Compounds & Lab 4
Eng 103 Basic Skills for Writing 3
Eng 104 Essay Writing 3
H&S 288 First Aid 2
HEc 270 Nutrition 3
Psych 100 Intro to Psychology 3
Soc 110 Intro to Sociology 3
Sp 131 Fundamentals of Speech 2
Humanities electives 2
Physical education activities 2

38-39

TWO-YEAR PROGRAM — **Credits**

Bact 250 General Bacteriology 4
Biol 210 Intro to Life Sciences 4
Chem 103 Intro to Chemistry, *or*
111 Principles of Chemistry 4
Chem 114 General Chemistry, *or*
275, 278 Carbon Compounds & Lab 4
HEc 270 Nutrition 3
HEc 334 Child Development 3
Psych 100 Intro to Psychology 3
Soc 110 Intro to Sociology 3
Zool 119 Human Anatomy & Physiology 5
Humanities and social science electives
(at least six credits in each field) 21
Communications electives (3 cr must
be in written communication) 6
Physical education activities 2
Electives 2

64

Strongly recommended elective:

HEc 340 Family Relations 3

PRE-PHYSICAL THERAPY STUDIES

The University of Idaho does not offer a formal program in pre-physical therapy studies; however, the pre-physical therapy adviser will assist interested students select courses to best qualify them for transfer into a regular program at another institution.

There are three plans of education leading to professional qualification in physical therapy: (1) four-year bachelor's degree courses for high school graduates and transfer students; (2) twelve- or sixteen-month certificate courses for students who hold the bachelor's degree; and (3) courses leading to the master's degree for students with a bachelor's degree and the requisite background. As noted above, such programs are not offered at the University of Idaho.

Recommended Preparation

The program listed below contains most of the essential courses for transfer into a typical program.

Course — **Credits**

Biol 201 Intro to the Life Sciences 4
Biol 202 General Zoology 4
Chem 111 Principles of Chemistry 4
Chem 114 General Chemistry 4
Eng 103 Basic Skills of Writing 3
Eng 104 Essay Writing 3
Math 140 College Algebra 3
Phys 113-114-115-116 Gen Phys & Lab 8
Psych 100 Intro to Psychology 3
Psych 205 Developmental Psych 3
Psych 311 Abnormal Psychology 3
Soc 110 Intro to Sociology 3
Zool 119 Human Anatomy & Physiology 5
Humanities electives 3
Physical education activities 2
Electives 14

NOTE: Students wishing to earn a bachelor's degree at the University of Idaho before transferring into a certificate program in physical therapy may earn the degree in an allied area.

PSYCHOLOGY (B.A. or B.S.)

Note: The alternatives for the mathematics requirements will be determined on the basis of high school mathematics courses and aptitude scores in consultation with departmental advisers. Alternatives in the major area and related courses should be selected in consultation with the departmental adviser.

General requirements for either the B.A. or B.S. degree, plus:

Course — **Credits**

Biol 201 Intro to Life Sciences 4
Biol 202 General Zoology 4
Psych 100 Intro to Psychology 3
Psych 201 Research in Behav Sci 4
Psych 217 Intro to Stat for Behav Sc 3
Electives from Psych 300-499 (minimum) 20
Mathematics (minimum) 3

RADIO-TELEVISION (B.A. or B.S.)

See School of Communication following this College of Letters and Science section.

RELIGIOUS STUDIES

Admission to a school of theology involves meeting satisfactorily

its entrance requirements, acceptable scholastic records, and possession of personal qualifications essential for effective leadership. The American Association of Theological Schools recommends a broad liberal arts background as the primary preparation for theological studies, along with such appropriate courses in religious studies as may be available at the student's undergraduate institution.

While the university does not offer a major in religious studies, i.e., there is no program leading to a degree, the following courses are suggested for students who (1) plan to transfer into a religious studies major at another institution, (2) plan to go to a seminary or theological school, or (3) wish to be introduced to the field of religious studies. The list is divided between "core" courses and "collateral" courses, and is not intended to be exhaustive.

Core Courses	Credits
Anthr 421 Belief of Sys of Sim Societies	3
Eng 375 Bible as Literature	3
Hist 448 Reformation Europe	3
Phil 111 Intro to Phil of Religion	3
Phil 305 Phil of Religion	3
Phil 432 India's Philosophies	3
RelSt 104 Biblical Hist & Thought	3
RelSt 106 Essentials of Christianity	2
RelSt 131 Rel & Meaning of Existence	3
RelSt 204 Special Topics: Bible Studies	3
RelSt 321 Cont Theological Thought	2
RelSt 322 Religious Institutions	2
RelSt 323 Religion & Society	2
RelSt 404 Special Topics: Bible Studies	3

Collateral Courses	Credits
Art 101-102 Survey of Art	4
FL/EN 211-212 Classical Mythology	4
Hist 101 History of Civilization	3
Hist 441-442 Greek & Roman History	6
Hist 446 Medieval Europe	3
Hist 457 Hist of the Middle East	3
Phil 101 *or* 103 Intro to Philosophy	3
Phil 201 Ethics	3
Psych 320 Social Psychology	3
RelSt 490 Tech & Human Values	2
Soc 321 The Community	3

SOCIOLOGY (B.A.)

General requirements for the B.A. degree plus the following courses (electives must receive approval of the head of the Department of Sociology/Anthropology):

Course	Credits
Anthr 110 Intro to Phys Anthr & Archaeology	3
Anthr 120 Intro to Social Anthr	3
Psych 461 Psych of Personality	3
Soc 110 Intro to Sociology	3
Soc 230 Social Problems	3
Soc 314 Social Statistics (or equiv)	3
Soc 410 Intro to Social Research	3
Soc 412 Social Struc & Personality	3
Soc 413 Early Social Theory	3
Soc 414 Modern Social Theory	3
Sociology electives (upper-division)	12
Related fields to include at least three courses selected from the following	18
Anthr 320 Peoples of the World	
Anthr 321 Culture & Personality	
Anthr 402 History of Anthr Theory	
Anthr 420 Ethnological Issues	
Anthr 421 Belief Sys of Simple Soc	
Anthr ID425 Contemp N Am Indian	
Comm 370 Comm & Attitude Change	
Comm 455 History of Mass Comm	
Comm 492 Mass Comm & Pub Opinion	
Econ 251 Prin of Economics	
Phil 411 Social Philosophy	
Phil 425 American Philosophy	
PolSc 433 Pub Opinion & Elec Behav	
Psych 205 Devel Psychology	
Psych 311 Abnormal Psychology	
Psych 320 Social Psychology	

SOCIAL WORK ELECTIVES

The University of Idaho does not offer a major curriculum in social work; however, sociology majors working toward the B.A. or B.S. degree who wish to prepare for a career in the field of social work should include the following additional courses among their allowable sociology electives or free electives:

Course	Credits
Bact 254 Public Health & Hygiene	3
Psych 311 Abnormal Psychology	3
Soc 240 Intro to Social Welfare	3
Soc 241 Contemp Social Welfare Org	3
Soc 320 Marriage & the Family	3
Soc 330 Juvenile Delinquency, *or* 331 Criminology	3
Soc 409 Field Meth in Soc/Social Work	8
Soc 440 Methods of Social Work	3

SOCIOLOGY (B.S.)

General requirements for the B.S. degree plus the following courses (electives must receive approval of the head of the Department of Sociology/Anthropology):

Course	Credits
All requirements listed for the B.A. in sociology	60
Math 111 Fund of Math, *or* 140 Coll Alg, *or* 180 Anal Geom & Calc I	3-4
Two courses from the following	5-7
Biol 201 Intro to the Life Sc	
Engr 131 Digital Com Prog (or equiv)	
Phil 412 Phil of Science	
Psych 418 Inter Stat for Behavioral Sciences (or equiv)	

SPANISH (B.A.)

General requirements for the B.A. degree, plus:

Course	Credits
FL/SP 181-182 Elem Spanish (or equiv)	8
FL/SP 281-282 Interm Spanish (or equiv)	8
Upper-division courses in Spanish lang	20
A second foreign language (elementary and intermediate, or equiv)	16
Related fields (as approved by chairman)	20

SPEECH (B.A. or B.S.)

See School of Communication following this College of Letters and Science section.

THEATRE ARTS (B.A. or B.S.)

The selection of courses in related fields within either option must be approved by the head of the department.

General requirements for either the B.A. or B.S. degree, plus:

Core Courses	Credits
ThA 102 Stage Makeup	1
ThA 105 Basics of Performance	2
ThA 108 Intro to Media	2
ThA 150 Performance Lab	8
ThA 163 Technical Production	3
ThA 190 Theatre Practice I	4
ThA 264 Stage Lighting	3
ThA 271 Play Analysis	3
ThA 272 Intermediate Acting	3
ThA 362 Costume for the Stage	2
ThA 390 Theatre Practice II	4
ThA 407-408 Styles of Acting	3-6
ThA 420 Production Management	2
ThA 467-468 The Theatre	6
ThA 471-472 Directing	6
Plus completion of either of the options below:	

A. ACTING-DIRECTING OPTION

Course	Credits
ThA 106 Basics of Performance	2
ThA 305 Methods in Characterization	3
ThA 306 Advanced Acting	3
ThA 424 *or* 4525 The Modern Theatre	3
Courses in related fields	20

B. TECHNICAL THEATRE OPTION

Course	Credits
ThA 320 Advanced Stage Lighting	2
ThA 363 Costume Construction	3
ThA 364 Scene Design & Tech Prob	3
Courses in related fields	20

THEATRE ARTS (B.F.A.)

General requirements for the B.S. degree *and* the core and other courses applicable to either of the options listed under the requirements for the B.A. or B.S. in theatre arts (see above), plus the following additional requirements.

Note: Courses listed below which satisfy the foregoing requirements may be counted toward those requirements.

A. ACTING-DIRECTING OPTION

Course	Credits
Art 101 Survey of Art	2
Eng 111-112 Literature of Western Civ	6
Eng 267 *or* 268 Survey of English Lit	3
Eng 277 *or* 278 Survey of American Lit	3
Eng 335 Shakespeare for Nonmajors	3
FL/EN 363 Survey of Classical Origins	3
Hist 101-102 History of Civilization	6
Hist 271 *or* 272 History of England	3
Hist 441 Greek & Roman History, *or* 446 Medieval Europe	3
MusH 100 Music Appreciation	3
Physical education (two credits each of dance and fencing taken in the freshman and sophomore years)	4
Psych 100 Intro to Psychology	3
Psych 205 Developmental Psych	3
Soc 110 Intro to Sociology, *or* 230 Social Problems	3

B. TECHNICAL THEATRE OPTION

Course	Credits
*Arch 155-156 Design & Creative Process	4
*Arch 385-386 History of Architecture	6
Art 101-102 Survey of Art	4
Art 111-112 Drawing I	4
Art 121-122 Creative Process & Design	4
Art 211-212 Drawing II	6
Art 223-224 Graphic Design I	4
Hist 101 History of Civilization	3
**HEc 123 Textiles	3
**HEc 124 Clothing	3
**HEc 324 Flat Pattern Study	3
**HEc 327 Tailoring	3
**HEc 424 Original Design	3
*IEd 140 Wood Technics	3
*IEd 170 Wood Prod Design & Fabrication	3
*IEd 315 Industrial Design	2
MusH 100 Music Appreciation	3
MusH 459 Opera Literature	3
Phil 101 *or* 103 Intro to Philosophy	3
Phil 401 Philosophy of the Arts	3
Physical education (two credits each of dance and fencing taken in the freshman and sophomore years)	4
Soc 110 Intro to Sociology	3

*Not taken by students concentrating in costuming.

**Taken by students concentrating in costuming.

ZOOLOGY (B.A. or B.S.)

General requirements for either the B.A. or B.S. degree, plus the following courses (electives are to be chosen in consultation with the departmental adviser).

Course	Credits
Biol 201 Intro to the Life Sciences	4
Biol 202 General Zoology	4
Biol 203 General Botany	4
Biol 331 General Ecology	3
Biol 351, 352 General Genetics & Lab	4
Biol 361 Biological Literature	1
Chem 111 Principles of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal	5
Chem 253 Quantitative Analysis	5
Chem 277, 278 Organic Chem I & Lab	4
Chem 372, 374 Organic Chem II & Lab	4
Math 140 College Algebra	3
Math 180 Anal Geom & Calc I	4
Phys 113-114-115-116 Gen Phys & Lab	8

Plus one of the following options:

A. VERTEBRATE OPTION

At least one course from each of the following groups:

Zool 323 Comp Vert Embry, *or* 324 Comp Vert Anat, *or* 427 Vert Hist & Organ	4
Zool 414-415 Cell Physiology & Lab, *or* 416 Mammalian Physiology	4-5
Zool 481 Ichthyology, *or* 482 Nat Hist of Birds, *or* 483 Nat Hist of Mammals, *or* 489 Herpetology	3-4
Zool 484 Invert Zool, *or* 488 Parasitology, *or* Ent 211 General Entomology	3-5

B. INVERTEBRATE OPTION

Ent 211 General Entomology	4
Ent 342 Insect Identification	4
Ent 442 Immature Insects, *or* Zool 436 Limnology, *or* Zool 487 Protozoology, *or* Zool 488 Parasitology	3
Ent 484 Insect Anatomy & Physiology	4
Ent ID498 Insect Morphogenesis	3
Zool 414-415 Cell Physiology & Lab	5
Zool 484 Invertebrate Zoology	5

School of Communication of the College of Letters and Science

Elmer K. Raunio, Dean of the College of Letters and Science; Don H. Coombs, Director of the School of Communication (214 Univ. Classroom Ctr.).

THE ACADEMIC DISCIPLINES and services in the field of communication were brought together under the School of Communication in 1972. The school functions as an administrative unit of the College of Letters and Science and is responsible for the subject fields of communication, journalism, photography, radio-television, and speech. Broadcast Services, which is part of the School of Communication, operates KUID-TV and KUID-FM, the university's television and radio stations.

The School of Communication provides professional preparation in communication fields and also functions as a multidepartmental academic unit of the College of Letters and Science for the purpose of offering courses for students in other fields. The school's objectives are: (1) to provide a means for greater integration of the broader communications area; (2) to open up areas for imaginative curricular development and synthesis, including graduate training and research; (3) to bring the various areas into closer relationship and cooperation; (4) to provide students with the best possible education and training for their chosen professional fields; and (5) to maintain viable broadcast services for the university, community, and state.

Curricula

The School of Communication offers curricula in communication, journalism, radio-television, and speech leading to the degrees of Bachelor of Arts or Bachelor of Science, and, cooperatively with the Department of Theatre Arts, the degree of Master of Arts in Teaching.

Students in this school must satisfy the general College of Letters and Science requirements for either the B.A. or B.S. degree, plus the specific School of Communication and departmental requirements listed below. (Consult the graduate catalog for the requirements for the Master of Arts in Teaching.)

School of Communication Requirements

All majors in the School of Communication are required to take at least one 2-credit course in each of the basic skills areas: (1) written, (2) oral, and (3) visual communication; plus Comm 488, Theory in Communication, and Comm 496, Senior Research Project.

COMMUNICATION (B.A. or B.S.)

General L & S and School of Communication requirements for either the B.A. or B.S. degree, plus:

Course	Credits
Art 224 Graphic Design I	2
Two courses from the following	4-6
Comm 120 Mass Comm in a Free Soc	
Comm 400 Seminar: Comm & Society	
Comm 490 Law of Mass Comm	
Sp 141 Interpersonal Comm	
One course from the following	2-3
Comm 491 Propaganda	
Comm 492 Mass Comm & Pub Opinion	
PolSc 433 Pub Opinion & Elec Behav	
Soc 313 Collective Behavior	
Sp 180 Rhetoric of Pol Campaigns	
Sp 181 Rhetoric of Pol Campaigns	

Plus from six to twelve communication-related courses selected to reflect personal and career specialization interests, and one of the following options:

A. ADVERTISING OPTION

Course	Credits
Bus 221 Marketing	3
Comm 360 Adv Media & Sales: Brdct	2
Comm 362 Adv Media & Sales: Print	2
Comm 366 Creative Proc of Adver	4
Comm 372 Prin of Public Relations	3
Jour 121 News Writing	3
RadTV 287 Station Writing	3
RadTV 292 Intro to TV Production	3
Sp 362 Comm & the Small Group	3
One course from the following	3
Comm 370 Comm & Attitude Change	
Psych 320 Social Psychology	
Psych 461 Psych of Personality	
Psych 490 Psych of Learning	
Soc 412 Soc Struc & Personality	

B. PUBLIC RELATIONS OPTION

Course	Credits
Comm 366 Creative Proc of Adver	4
Comm 372 Prin of Public Relations	3
Jour 121 News Writing	3
Jour 384 Publications Editing	3
RadTV 287 Station Writing	3
RadTV 292 Intro to TV Production	3
Sp 341 Organizational Communication	3
Sp 362 Comm & the Small Group	3
One course from the following	3
Comm 370 Comm & Attitude Change	
Psych 320 Social Psychology	
Psych 461 Psych of Personality	
Psych 490 Psych of Learning	
Soc 412 Soc Struc & Personality	

C. PHOTOGRAPHY OPTION

Course	Credits
Art 101 Survey of Art	2
Jour 384 Publications Editing	3
Photo 281 Understanding Photography	3
Photo 381 Personal Way of Seeing	3
Photo 400 Seminar	3
Photo 401 History of Photography	3
RadTV 388 Cinematography for TV	3
RadTV 400 Seminar: Documentary Film	2
One course from the following	3
Comm 370 Comm & Attitude Change	
Psych 320 Social Psychology	
Soc 412 Social Struc & Personality	

JOURNALISM (B.A. or B.S.)

General L & S and School of Communication requirements for either the B.A. or B.S. degree, plus:

Course	Credits
Comm 120 Mass Comm in a Free Society	2
Comm 455 History of Mass Comm	3
Comm 490 Law of Mass Comm	3
Jour 121 News Writing	3

Jour 222 Reporting	3
Jour 323 Public Affairs Reporting	3
Advertising electives	2-3
Cognate fields* (including economics, history, literature, political science, sociology, anthropology, geography, philosophy, psychology, speech, and theatre arts, *with at least one 2-4 cr course in each of the first five fields named*; not less than fifteen of these thirty credits must be at the upper-division level	30
Plus one of the options listed below and sufficient electives to complete 128 cr for the degree	—

A. NEWS-EDITORIAL OPTION

Course	Credits
Jour 354 News Editing	3
Jour 424 Interpretive Writing	3
At least three of the following:	
Comm 366 Creative Proc of Adver	4
Comm 372 Prin of Public Relations	3
Comm 445 Internship	3
Comm 492 Mass Comm & Public Opinion	2
Jour 224 Graphic Design I	2
Jour 384 Publications Editing	3
Jour 432 Feature Article Writing	3
Photo 281 Understanding Photography	3

B. RADIO-TELEVISION NEWS OPTION

Course	Credits
RadTV 285 Announcing & Radio Prod I	2
RadTV 388 Cinematography for TV	3
RadTV 494 Radio-Television News	3
At least three of the following:	
Comm 372 Prin of Public Relations	3
Comm 445 Internship	1-8
Comm 492 Mass Comm & Public Opinion	2
Jour 424 Interpretive Writing	3
Photo 281 Understanding Photography	3
RadTV 141 Intro to Radio-TV Brdctg	3
RadTV 253 Recording & Brdctg Tech	3
RadTV 287 Station Writing	3
RadTV 292 Intro to TV Production	3

*Candidates for the B.S. degree are also required to complete at least twenty credits in a specialized field (or a logical combination of related courses) which will constitute a minor. The minor program must be worked out with an adviser in the minor field and approved by the chairman of the Department of Journalism. In the event that the minor for the B.S. degree is one of the cognate fields, no more than six of the credits in the minor may be counted toward the thirty-credit cognate-fields requirement.

RADIO-TELEVISION (B.A. or B.S.)

General L & S and School of Communication requirements for either the B.A. or B.S. degree, plus:

Course	Credits
Comm 490 Law of Mass Comm	3
RadTV 141 Intro to Rad-TV Brdctg	3
RadTV 253 Recording & Brdctg Tech	3
RadTV 285 Announcing & Radio Prod I	2
RadTV 287 Station Writing	3
RadTV 292 Intro to TV Production	3
RadTV 388 Cinematography for TV	3
RadTV 485 Announ & Radio Prod II	2
RadTV 492 Advanced TV Production	3
RadTV 493 Broadcast Management	3
Additional courses in the School of Communication	12
Plus the following course areas beyond the general L & S requirements:	
Advertising	2-3
Speech	2
Humanities (B.S. degree only)	6
Social sciences	6

In addition to the above, candidates for the B.S. degree are required to complete at least twenty credits in a specialized subject-matter area (or logical combination of related courses) which will constitute a minor. The minor program must be worked out with an adviser in the minor field and approved by the chairman of radio-television.

The following courses are not required, but should be used in the major's program (or minor field) to emphasize professional broadcast areas of career interest:

Comm 360 Adver Media & Sales: Brdct
Photo 288 Basic Film
RadTV 200 Seminar
RadTV 203 Workshop
RadTV 299 Directed Study
RadTV 322 Educ Use of Broadcasting
RadTV 400 Seminar
RadTV 403 Workshop
RadTV 494 Radio-TV News
RadTV 499 Directed Study

SPEECH (B.A.)

General L & S and School of Communication requirements for the B.A. degree, plus the following courses (electives must be approved by the student's adviser):

Course	Credits
Comm 491 Propaganda	2
Sp 111 Great Speakers on Great Issues	2
Sp 131 Fundamentals of Speech	2
Sp 141 Interpersonal Communication	2
Sp 151 Voice, Diction, & Oral Interp	2
Sp 231 Informative Speech	2
Sp 331 Persuasive Speech	3
Sp 362 Comm & the Small Group	3
Additional credits in speech (including at least one course from Sp 180, 181, 191, 192, 193, and 194)	8
Related fields	20

SPEECH (B.S.)

General L & S and School of Communication requirements for the B.S. degree, plus one of the following options (electives must be approved by the student's adviser):

A. PUBLIC ADDRESS OPTION

Course	Credits
Comm 491 Propaganda	2
Sp 111 Great Speakers on Great Issues	2
Sp 121 Improving Listening Skills	1
Sp 131 Fundamentals of Speech	2
Sp 141 Interpersonal Communication	2
Sp 151 Voice, Diction, & Oral Interp	2
Sp 209 Argumentation	3
Sp 231 Informative Speech	2
Sp 331 Persuasive Speech	3
Sp 362 Comm & the Small Group	3
Additional credits in speech (including at least one course from Sp 180, 181, 191, 192, 193, 194)	6
Related fields	20

B. INTERPERSONAL COMMUNICATION OPTION

Course	Credits
Comm 370 Comm & Attitude Change	3
Comm 491 Propaganda	2
Sp 121 Improving Listening Skills	1
Sp 131 Fundamentals of Speech	2
Sp 140 Nonverbal Communication	1
Sp 141 Interpersonal Communication	2
Sp 241 Intercultural Communication	2
Sp 321 Interviewing	3
Sp 341 Organizational Communication	3
Sp 362 Comm & the Small Group	3
Additional credits in speech (including at least one course from Sp 180, 181, 191, 192, 193, 194)	6
Electives in behavioral and social sciences, business, communication, radio-TV, journalism, or English to bring the total for the option to 54 cr	26

School of Home Economics of the College of Letters and Science

Elmer K. Raunio, Dean of the College of Letters and Science; Marie K. Carano, Director of the School of Home Economics (108 Mary Hall Niccolls Home Economics Bldg.).

A DEPARTMENT of Home Economics was established in 1902 at the University of Idaho. The School of Home Economics was organized in 1974 and functions as an administrative unit within the College of Letters and Science. As a professional and academic unit, the objectives of the School of Home Economics are to (1) prepare graduates for a variety of professional careers as home economists, (2) provide for the general or liberal education of the student for the development of responsible leadership and citizenship for effective participation in home and community life, and (3) offer general enrichment courses for all students.

Curricula

The curricula in the School of Home Economics provide opportunity for study in a variety of careers. Five majors at the undergraduate level are available with various options within each major. The majors leading to the degree of Bachelor of Science in Home Economics include: general home economics; home economics education; food and nutrition; clothing, textiles and design; and child development. Additionally, the degree of Bachelor of Arts may be obtained in child development. Double options in several majors may be achieved with careful planning.

Consult the catalog of the Graduate School for requirements for the M.S. and M.A.T. degrees.

Certification

For information on membership in the American Dietetics Association, see the curriculum in food and nutrition.

Home economics education majors are eligible for vocational endorsement upon the completion of degree requirements. They may apply for teacher certification in the state of Idaho and are qualified to teach consumer-homemaking in grades 7 through 12. In addition, if students also elect the extension practicum, they are qualified to apply for positions with the Cooperative Extension Service.

Students may elect one of several options in the curriculum in child development which qualifies them to apply for state certification to teach in the public schools.

Home Economics Scholarships

Application forms and information about scholarships for home economics students may be obtained from the director of the School of Home Economics or from the Office of Student Financial Aids.

CHILD DEVELOPMENT (B.S.H.Ec.)

General L & S requirements for the B.S. degree, including Psych 100 and Zool 119, plus:

Course	Credits
Ed 434 Children's Literature	3
HEc 109 Intro to Home Economics	0
HEc 113 Art	3
HEc 123 Textiles, *or* 124 Clothing, *or* 229 Clothing Analysis	2-3
HEc 234 Intro to Child Development	2
HEc 236 Preschool Observation Anal	1
HEc 270 Nutrition	3
HEc 271 Foods, *or* 170 Family Nutrition & Meal Management	2-3
HEc 334 Child Development	3
HEc 340 Family Relations	3
HEc 346 Principles of Home Mgmt	2
HEc 434 Preschool Participation	6-9
HEc 435 Hist & Phil of Child Dev	2
HEc 448 Consumer Education	3
Psych 205 Developmental Psychology	3
Sp 131 Fund of Speech, *or* 151 Voice, Diction, & Oral Interpretation	2

Plus one of the following options:

A. Merrill-Palmer
B. Pacific Oakes
C. Bank Street College
D. Additional major in the College of Education

CHILD DEVELOPMENT (B.A.)

General L & S requirements for the B.A. degree, including Psych 100 and Zool 119, plus:

Course	Credits
Ed 434 Children's Literature	3
HEc 113 Art	3
HEc 234 Intro to Child Development	2
HEc 236 Preschool Observation Anal	1
HEc 270 Nutrition	2
HEc 334 Child Development	3
HEc 340 Family Relations	3
HEc 346 Principles of Home Mgmt	2
HEc 433 Preschool Resources	2
HEc 434 Preschool Participation	6-9
HEc 435 Hist & Phil of Child Dev	2
HEc 436 Current Theories of Child Dev	3-4
HEc 448 Consumer Education	3
Psych 205 Developmental Psychology	3
Sp 131 Fund of Speech, *or* 151 Voice, Diction, & Oral Interpretation	2

Plus one of the following options:

A. Merrill-Palmer
B. Pacific Oakes
C. Bank Street College
D. Additional major in the College of Education

CLOTHING, TEXTILES AND DESIGN (B.S.H.Ec.)

Course	Credits
Art 101-102 Survey of Art	4
Bus 323 Principles of Advertising	3
Chem 103 Intro to Chem, *or* 111 Prin of Chem, *or* Phys 101 Fund of Phys Sc	4
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
HEc 109 Intro to Home Economics	0
HEc 113 Art	3
HEc 123 Textiles	3
HEc 124 Clothing	3
HEc 229 Clothing Analysis	2

HEc 270 Nutrition 3
HEc 271 Foods 2
HEc 314 Weaving 3
HEc 324 Flat Pattern Study 3
HEc 326 Housing & Home Furnishings 3
HEc 334 Child Development, *or* 234
Intro to Child Development 2-3
HEc 340 Family Rel, *or* 346 Prin of
Home Mgmt, *or* Soc 320 Marriage & the Family 2-3
HEc 413 Textile Design 2
HEc 423 Advanced Textiles 3
HEc 448 Consumer Education 3
Psych 100 Intro to Psychology 3
Soc 110 Intro to Sociology 3
Physical education activities 2
Science electives 8
Social science electives 3
Plus one of the following options:

A. CLOTHING OPTION

Course	Credits
HEc 327 Tailoring	3
HEc 329 Hist of Costume & Textiles	3
HEc 424 Original Design	3
HEc 429 Soc-Psych Aspects of Clothing	2

B. INTERIORS OPTION

Course	Credits
HEc 426 Hist of Interiors & Furnishings	3
HEc 428 Family Housing	2

FOOD AND NUTRITION (B.S.H.Ec.)

Course	Credits
Anl 305 Principles of Nutrition	3
Bact 250 General Bacteriology	4
Chem 111 Principles of Chemistry	4
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
HEc 109 Introduction to Home Economics	0
HEc 270 Nutrition	3
HEc 271 Foods	3
HEc 272 Food Management	2
HEc 371 Diet Therapy	5
HEc 470 Problems in Nutrition	3
HEc 474 Investigation of Foods	3
Math 140 College Algebra	3
Psych 100 Introduction to Psychology	3
Soc 110 Introduction to Sociology	3
Zool 119 Human Anatomy & Physiology	5
Physical education activities	2

Plus one of the following options:

A. GENERAL DIETETICS OPTION

Course	Credits
Ag 321 Biometry	3
Anthr 120 Intro to Social Anthropology	3
Bus 413 Human Relations in Business	3
Chem 112 Inorganic Chem & Qual Anal, *or* 114 General Chemistry	4-5
Chem 275 Carbon Compounds, *or* 277 Organic Chemistry	3
Chem 278 Organic Chemistry I Lab	1
Chem 480, 483 Elem of Biochem & Lab, *or* Biochem 205 General Biochemistry	4
Econ 251 Principles of Economics	3
Engr 131 Digital Computer Programming	2
HEc 113 Art, *or* 123 Textiles	3
HEc 242 Household Equip, *or* 346 Prin of Home Mgmt, *or* 448 Consumer Education	2-3
HEc 334 Child Development	3
HEc 373 Community Nutrition	4
HEc 384 College Food Systems Mgmt	5

Recommended but not required:
HEc 124 Clothing 3
HEc 347 *or* 349 Home Management 3
HEc 487 Dietetics Practicum 8

B. COORDINATED UNDERGRADUATE PROGRAM OPTION
The same as option A, with the addition of:

Course	Credits
HEc 372 Clinical Dietetics	10
HEc 472 Clinical Dietetics	12
HEc 484 Hospital Food Systems Management	10
HEc 487 Dietetics Practicum	8

C. FOOD AND NUTRITION RESEARCH PROGRAM OPTION

Course	Credits
Bact 402 Food & Applied Microbiology	4
Chem 112 Inorganic Chem & Qual Anal	5
Chem 253 Quantitative Analysis	5
Chem 277, 278 Organic Chem I & Lab	4
Chem 372, 374 Organic Chem II & Lab	4
HEc 113 Art, *or* 123 Textiles	3
HEc 242 Household Equip, *or* 346 Prin of Home Mgmt, *or* 448 Consumer Education	2-3
HEc 334 Child Development	3
HEc 478 Recent Advances in Food	2
Math 180, 190, 200 Anal Geom & Calc	11
Zool 417 *or* Anl 451 Endocrine Physiology	3
Social science electives	6
Plus at least 15 cr selected from the following:	
Ag 321 Biometry	3
Biochem 431 Chem & Phys of Vitamins	3
Biol 201 Intro to Life Sciences	4
Chem 302 Principles of Phys Chemistry	3
Chem 480 Elements of Biochemistry	3
Chem 481, 482, 483 Biochem & Lab	8
Eng 317 Tech & Engr Report Writing	3
Proficiency in one foreign language equivalent to completion of FL/FR 201-202, Intermediate French, *or* FL/GN 221-222, Intermediate German	0-8

GENERAL HOME ECONOMICS (B.S.H.Ec.)

Course	Credits
Bact 250 General Bacteriology, *or* 254 Public Health & Hygiene	3-4
Chem 102 Chem & the Citizen, *or* 103 Intro to Chem, *or* 111 Prin of Chem, *or* Phys 101 Fund of Phys Sc	3-4
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
HEc 109 Intro to Home Economics	0
HEc 113 Art	3
HEc 123 Textiles	3
HEc 124 Clothing	3
HEc 229 Clothing Analysis	2
HEc 270 Nutrition	3
HEc 271 Foods	3
HEc 272 Food Management	2
HEc 326 Housing & Home Furnishings	3
HEc 334 Child Development	3
HEc 340 Family Relations	3
HEc 346 Principles of Home Mgmt	2
HEc 347 *or* 349 Home Management	3
HEc 448 Consumer Education	3
HEc 470 Problems in Nutrition	3
Psych 100 Intro to Psychology	3
Soc 110 Intro to Sociology	3
Zool 119 Human Anat & Physiology	5
Physical education activities	2
Social science electives	3

Plus one of the following options:

A. GENERAL OPTION

Course	Credits
Foreign language or humanities	7-9

B. JOURNALISM OPTION

Course	Credits
Comm 372 Prin of Public Relations	3
Jour 121 News Writing	3
Jour 222 Reporting	3
Jour 354 News Editing	3
Jour 432 Feature Article Writing	3
Electives from journalism, photography, or radio-TV	7

C. BUSINESS OPTION

Course	Credits
Acctg 201 Prin of Accounting	3

(Continued on next page)

Acctg 202 Managerial Accounting	3
Bus 221 Marketing	3
Econ 251-252 Prin of Economics	6
Business Electives	6

HOME ECONOMICS EDUCATION (B.S.H.Ec.)

Course	Credits
Ed 201 Intro to Teaching	2
Ed 415 Educational Psychology	3
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
HEc 109 Intro to Home Economics	0
HEc 113 Art	3
HEc 123 Textiles	3
HEc 124 Clothing	3
HEc 229 Clothing Analysis	2
HEc 242 Household Equipment	3
HEc 270 Nutrition	3
HEc 271 Foods	3
HEc 272 Food Management	2
HEc 326 Housing & Home Furnishings	3
HEc 334 Child Dev, *or* 234 Intro to Child Dev *and* 236 Preschool Obser Anal	3
HEc 340 Family Relations	3
HEc 346 Prin of Home Management	2
HEc 347 *or* 349 Home Management	3
HEc 352 Meth in Teaching Home Ec	3
HEc 448 Consumer Education	3
HEc 455 Prob in Tchng HEc & Adult Ed	3
HEc 470 Problems in Nutrition	3
Psych 100 Intro to Psychology	3
Soc 110 Intro to Sociology	3
Sp 131 Fundamentals of Speech	2
Humanities electives	3
Social science electives (to include economics)	6
Physical education activities	2
Science courses to include chemistry or physics; Zool 119 or biology; and bacteriology	12

Plus one or both of the following options:

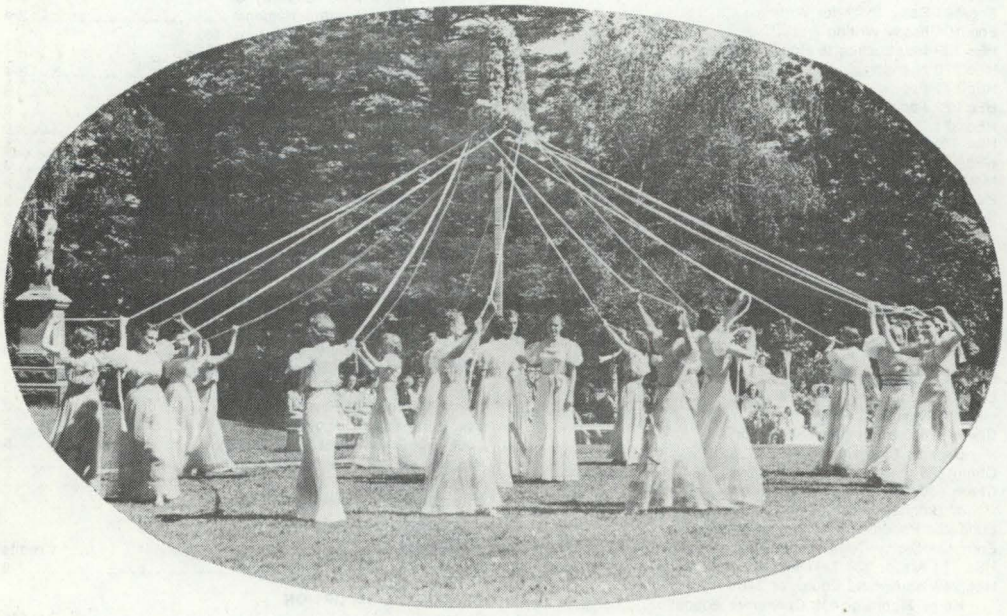
A. CLASSROOM TEACHING OPTION

Course	Credits
HEc 457 Student Tchng in HEc Class	6-9
VocEd 351 Principles of Voc Ed	2
VocEd 497 Coordination Techniques	3

Plus approved courses for a second teaching field or additional courses in home economics to attain a 45-credit major.

B. EXTENSION OPTION

Course	Credits
AgEd 348 Extension Methods	2
HEc 457 Student Tchng in HEc Class, *or* 458 Cooperative Extension Practicum	6-9



Above: 1939 maypole dance during May Fete celebration.

School of Music of the College of Letters and Science

Elmer K. Raunio, Dean of the College of Letters and Science; Floyd H. Peterson, Director of the School of Music (206 Music Bldg.); Norman R. Logan, Secretary of the Music Faculty.

A DEPARTMENT OF MUSIC was established at the University of Idaho in 1893. The School of Music was organized as an administrative unit within the College of Letters and Science in 1969 and serves as the state's preeminent center for undergraduate and graduate programs in musical performance. In addition, the School of Music, functioning both as a professional school and as an academic department within the College of Letters and Science, shares with the other senior institutions in the state system of higher education the responsibility to offer liberal studies in music as well as programs for the preparation of music teachers.

Students in the school learn through performance, listening, analysis, and creation. Curricular emphasis is on the understanding of musical style and techniques of all eras, including the present, and on achieving balance between the aesthetic and the practical.

The University of Idaho is accredited by the Northwest Association of Secondary and Higher Schools and the National Council for the Accreditation of Teacher Education. As a full member of the National Association of Schools of Music, the standards of the School of Music are in accordance with those set by the association.

Facilities

The Music Building houses faculty studio-offices, instrumental and vocal facilities, a record and score library, classrooms, a music education materials center, a record and tape listening center, a recital hall, and student lounges. A second building containing private practice facilities is nearby. In addition, complete recording and radio-television facilities are maintained on the campus. All equipment is maintained by professional staff. The school has two performance pipe organs and provides organ and grand piano practice instruments for students taking private lessons in these areas.

Performance Opportunities

The performing organizations in the School of Music are the University Symphony Orchestra, Idaho Chamber Orchestra, Concert Choir (Vandaleers), Band (two sections of Wind Ensemble, plus Concert Band, Vandal Marching Band, three sections of Jazz Lab Band, and pep bands), Chorus (University Singers and Women's Chorus), Opera Workshop, Collegium Musicum, Brass Choir, Percussion Ensemble, and numerous smaller ensembles—Madrigal Singers, string quartets, woodwind and brass quintets, etc. These groups are open to all students, and majors in areas other than music comprise as much as one-half of the membership in some of the organizations. In addition to their many concerts on campus, several of these groups participate in tours of Idaho and the Northwest.

Transfer Students

Because the various curricula in the School of Music are planned in continuity with basic courses taken during the first year, students planning to major in this school at the University of Idaho are strongly advised to enter the university as freshmen. Students transferring from other institutions with preparation differing from the university pattern may be admitted to an appropriate curriculum in music or music education; however, it may be necessary for such students to take more than the minimum number of credits for a degree.

Concerts and Recitals

The Schoc' of Music presents an annual series of concerts and recitals which includes faculty artists, outstanding students, student and faculty performing groups, and guest musical attractions. In addition, there is a regular series of daytime concerts in the Music Building. Most concerts are open to the public without charge; however, a small admission fee is charged for special events, such as opera and performances by certain visiting groups.

Financial Aids

Information about scholarships and financial aids for music students may be obtained from the director of student financial aids.

Curricula

The School of Music offers curricula leading to the degrees of Bachelor of Music, Bachelor of Arts, Master of Music, Master of Arts, and Master of Arts in Teaching.

The Bachelor of Music degree is offered with majors in vocal or instrumental performance, composition, instrumental music education, vocal music education, or a combination of vocal and instrumental music education. It is a professional music degree and is the normal precedent for graduate work in music.

The Bachelor of Arts is offered with majors in applied music (performance), music history and literature, and music theory. The B.A.

emphasizes a broad liberal education and is neither professionally oriented nor the normal route to certification for public school music teaching.

General and specific requirements for the undergraduate curricula are listed below. Recommended four-year curriculum sequences are available from the office of the School of Music. Consult the catalog of the Graduate School for requirements for the M.A., M.Mus., and M.A.T. degrees.

General Requirements for All B.A. and B.Mus. Degrees

Keyboard Proficiency. Minimum keyboard proficiency for all music majors is met by satisfactory completion of MusC 133, Theory Keyboard Laboratory. Certain curricula may have additional requirements which are included in the School of Music Handbook. Students should confer with their adviser for specific requirements appropriate to their curriculum.

Academic Junior Standing (AJS). Each major in the School of Music must be admitted into AJS by the music faculty before he or she will be permitted to enroll in music courses at the 300 level. Normally, this occurs during the first semester of the sophomore year. Transfer students may not be admitted into AJS until twelve hours have been completed at the university, during which time the student was enrolled as a major in the School of Music; however, a transfer student may enroll in 300-level courses before being admitted to AJS if the normal sequence of courses would justify this procedure.

Upper-Division Standing (UDS). For an undergraduate to enroll in MusA 301, he or she must have passed the requirements of the major area; this involves a special jury examination and demonstrates the successful completion of the fundamentals of the student's major area of performance and the ability to continue improving in a manner which will lead to the performance requirements of the degree and the major emphasis.

Convocation. Majors in the School of Music are required to attend a specified number of musical events as a part of their musical development. In order to certify this attendance, registration in MusX 140, Convocation, is required during every semester until the requirement is fulfilled. It is a graduation requirement that all B.A. and B.Mus. candidates receive a passing grade in MusX 140 for seven semesters of their residence at the University of Idaho. Students will not be admitted to academic junior standing until they have passed three semesters of convocation (admittance to AJS normally occurs after the first semester of the sophomore year). Transfer students are expected to enroll in MusX 140 during their first registration, and to receive a passing grade in a specified number of semesters (to be determined when the student's program is set up).

BASIC REQUIREMENTS FOR THE B.A. DEGREE IN MUSIC

Course	Credits
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
MusC 133 Theory Keyboard Lab	1
MusC 141 Musicianship & Music Lit	3
MusC 142, 241, 242 Theory of Music I, II, III	9
MusC 341 20th-Century Music Theory & Lit	4
MusH 144, 243, 244 History of Music I, II, III	6
MusX 140 Convocation (seven semesters)	0
Physical education activities	2
Humanities (L & S humanities requirement, plus courses from art, architecture, dance, literature, or theatre arts)	18
Science (L & S science requirement)	9-12
Social science (L & S social science requirement, plus additional social science courses)	12
Foreign language (L & S foreign language requirement)	0-16

Note: Of the minimum of 128 credits required for the B.A. degree, at least seventy-eight credits must be in courses *outside* of the School of Music.

MUSIC: APPLIED MUSIC (B.A.)

Basic requirements for the B.A. degree in the School of Music, plus:

Course	Credits
MusA 100, 101, 201, 301 (2 cr each semester; at least 4 cr in 301) Indiv Instr	16
MusA 490 Senior Recital	0
One of the following courses	2
MusC 323 Tonal Counterpoint	
MusC 324 Modal Counterpoint	
MusC 325 Composition	
MusC 327 Orchestration I	
MusH Special period course to be selected from MusH 410 through 418	
Electives to total 128 cr for the degree	—

MUSIC: HISTORY AND LITERATURE (B.A.)

Basic requirements for the B.A. degree in the School of Music, plus:

Course	Credits
MusA 100, 101, 201, 301 (1 cr each semester) Indiv Instr	8
MusC 323 *or* 324 Ton *or* Mod Counter	2
MusC 327 Orchestration I	2
MusH Special period courses to be selected from MusH 410 through 418	4
Music history electives	2
Electives to total 128 cr for the degree	—

MUSIC: THEORY (B.A.)

Basic requirements for the B.A. degree in the School of Music, plus:

Course	Credits
MusA 100, 101, 201, 301 (1 cr each semester) Indiv Instr	8
MusC 323, 324 Ton & Mod Counter	4
MusC 325 Composition	2
MusC 327 Orchestration I	2
MusC 427 Orchestration II	2
Electives to total 128 cr for the degree	—

BASIC REQUIREMENTS FOR THE B.MUS. DEGREE

Course	Credits
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Physical education activities	2
Large performance ensembles — to be selected from MusA 103, 104, 105, 106, 303, 304, 305, or 306 (registration is normally required during the first two years of residence; registration in some performance ensemble, large or small, is required throughout the student's first eight semesters)	4
Elective ensembles — from MusA 265, 266, 280, 365, 366, or 480 (additional large-ensemble credits may be elected from MusA 103, 104, 105, 106, 303, 304, 305, or 306 to satisfy this requirement)	2
MusA 100, 101, 201, 301 Indiv Instr (major area)	12
MusC 133 Theory Keyboard Lab	1
MusC 141 Musicianship & Music Lit	3
MusC 142, 241, 242 Theory of Music I, II, III	9
MusH 321-322 Music in Western Civ	6
MusX 140 Convocation (seven semesters)	0

MUSIC: INSTRUMENTAL PERFORMANCE (B.Mus.)

Basic requirements for the B.Mus. degree, plus the specific requirements in either of the sections below. It is strongly recommended that instrumentalists elect literature or pedagogy courses appropriate to their major fields.

A. KEYBOARD

Course	Credits
MusA 100, 101, 147-148, 151, *or* 201 Indiv or Class Instr (secondary fields)	4
MusA 301 Indiv Instr (major)	12
MusA 387 Conduct I (recommended)	0-2
MusA 490 Senior Recital	0
Additional elective ensemble performing groups	2
MusH 431 and/or 432 Piano Literature	2-4
MusT 433 Piano Pedagogy	2
Courses acceptable toward the L & S general requirements for the B.A. degree (not counting courses in music, physical education, or Eng 103, 104)	26
Additional music electives (to be selected from courses in the 300-499 series in the following proportions: MusA, 0-6 cr; MusC, 6-12 cr; MusH, 4-12 cr; MusT, 0-6 cr; MusX, 0-6 cr)	18
Electives to total 128 cr for the degree	—

B. ORCHESTRAL INSTRUMENTS OR GUITAR

Course	Credits
MusA 100, 101, 146, 147-148, 151, 201, *or* 245-246 Indiv or Class Instr (secondary fields)	0-4
MusA 301 Indiv Instr (major)	12
MusA 265, 266, 365, 366 Ensemble	2
MusA 387 Conducting I	2
MusA 490 Senior Recital	0
Additional elective ensemble performing groups	2
Courses acceptable toward the L & S general requirements for the B.A. degree (not counting courses in music, physical education, or Eng 103, 104)	26
Additional music electives (to be selected from courses in the 300-499 series in the following proportions: MusA, 0-6 cr; MusC, 6-12 cr; MusH, 6-12 cr; MusT, 0-6 cr; MusX, 0-6 cr)	24
Electives to total 128 cr for the degree	—

MUSIC: VOCAL PERFORMANCE (B.Mus.)

Basic requirements for the B.Mus. degree, plus:

Course	Credits
MusA 100, 101, 146, 151, 201, *or* 245-246 Indiv or Class Instr (secondary fields)	4
MusA 301 Indiv Instr (major)	12
MusA 387 Conducting I	2
MusA 490 Senior Recital	0
Additional elective ensemble performing groups	2
MusH 435 Solo Vocal Literature	2
MusT 437 Vocal Pedagogy	2
Foreign lang (two yrs of one language or one yr each of two languages)	16
Courses acceptable toward the L & S general requirements for the B.A. degree, not counting courses in music, physical education, or Eng 103, 104; however, ThA 105, 272, and 407 may be counted toward this requirement	10
Additional music electives (to be selected from courses in the 300-499 series in the following proportions: MusA, 0-4 cr; MusC, 6-12 cr; MusH, 6-12 cr; MusT, 0-4 cr; MusX, 0-4 cr)	18
Electives to total 128 cr for the degree	—

MUSIC: COMPOSITION (B.Mus.)

Basic requirements for the B.Mus. degree, plus:

Course	Credits
*MusA 100, 101, *or* 201 Indiv Instr (piano)	0-4
MusA 387 Conducting I	2
MusC 323, 324 Ton & Mod Counter	4
MusC 325 Composition	2
MusC 327 Orchestration I	2
MusC 427 Orchestration II	2
MusT 251, 252, 253, 254 Instr Tech	4
Additional composition (from MusC 200 and/or 400)	6
Courses acceptable toward the L & S general requirements for the B.A. degree (not counting courses in music, physical education, or Eng 103, 104)	26
Additional music electives (to be selected from courses in the 300-499 series in the following proportions: MusA, 0-4 cr; MusC, 4-8 cr; MusH, 6-12 cr; MusT, 0-4 cr; MusX, 0-6 cr)	14
Electives to total 128 cr for the degree	—

*Competence at the piano should be viewed as an essential tool of the composer.

MUSIC EDUCATION: VOCAL (B. Mus.)

Basic requirements for the B.Mus. degree, plus:

Course	Credits
MusA 100, 101, 146, 151, 201, *or* 245-246 Indiv or Class Instr (secondary fields)	5-9
MusA 301 Indiv Instr (major)	2-4
MusA 387 Conducting I	2
Additional elective ensemble performing groups	2
MusT 381 Elem School Music Meth	3
MusT 383 Prin of Music Teaching	3
MusT 385 Choral Mus in Sec Schools	2
MusX 283 Diction for Singers	2
Ed 201 Introduction to Teaching	2
Ed 314 Strategies for Teaching	2
Ed 432 Practicum: Music Teaching	9
Ed 445 Proseminar in Teaching	1
Psych 100 Intro to Psychology	3

(Continued on next page)

Psych 205 *or* Ed 415 Developmental or Educational Psych	3
Additional electives in English composition and/or literature	6
Social science electives	6
Science and/or mathematics electives	8
Additional music electives (to be selected from courses in the 300-499 series in the following proportions: MusA, 0-4 cr; MusC, 2-6 cr; MusH, 2-6 cr; MusT, 0-4 cr; MusX, 0-4 cr)	8
Electives to total 128 cr for the degree	—

MUSIC EDUCATION: INSTRUMENTAL (B.Mus.)

Basic requirements for the B.Mus. degree, plus:

Course	Credits
MusA 100, 101, 146, 147-148, 151, 201, *or* 245-246 Indiv or Class Instr (secondary fields)	5-9
MusA 301 Indiv Instr (major)	2-4
MusA 387 Conducting I	2
Additional elective ensemble performing groups	2
MusT 251, 252, 253, 254 Instr Tech	4
MusT 381 Elem School Music Meth	3
MusT 383 Prin of Music Teaching	3
MusT 386 Instr Mus in Sec Schools	2
Ed 201 Introduction to Teaching	2
Ed 314 Strategies for Teaching	2
Ed 432 Practicum: Music Teaching	9
Ed 445 Proseminar in Teaching	1
Psych 100 Intro to Psychology	3
Psych 205 *or* Ed 415 Developmental or Educational Psych	3
Additional electives in English composition and/or literature	6
Social science electives	6
Science and/or mathematics electives	8
Additional music electives (to be selected from courses in the 300-499 series in the following proportions: MusA, 0-4 cr; MusC, 2-6 cr; MusH, 2-6 cr; MusT, 0-4 cr; MusX, 0-4 cr)	8
Electives to total 128 cr for the degree	—

MUSIC EDUCATION: VOCAL-INSTRUMENTAL (B.Mus.)

Basic requirements for the B.Mus. degree, plus:

Course	Credits
MusA 100, 101, 146, 147-148, 151, 201, *or* 245-246 Indiv or Class Instr (secondary fields)	5-9
MusA 301 Indiv Instr (major)	2-4
MusA 387 Conducting I	2
Additional elective ensemble performing groups	2
MusT 251, 252, 253, 254 Instr Tech	4
MusT 381 Elem School Music Meth	3
MusT 383 Prin of Music Teaching	3
MusT 385 Choral Mus in Sec Schools	2
MusT 386 Instr Mus in Sec Schools	2
Ed 201 Introduction to Teaching	2
Ed 314 Strategies for Teaching	2
Ed 432 Practicum: Music Teaching	9
Ed 445 Proseminar in Teaching	1
Psych 100 Intro to Psychology	3
Psych 205 *or* Ed 415 Developmental or Educational Psych	3
Additional electives in English composition and/or literature	6
Social science electives	6
Science and/or mathematics electives	8
Additional music electives (to be selected from courses in the following proportions: MusA, 0-4 cr; MusC, 2-4 cr; MusH, 2-4 cr; MusT, 0-4 cr; MusX, 0-4 cr)	8
Electives to total 128 cr for the degree	—

College of Mines

Maynard M. Miller, Dean (206 Mines Bldg.); Donald F. Clifton, Secretary of the College Faculty.

THE COLLEGE OF MINES (then called "School of Mines") was created in 1917 as an administrative unit of the university. There are three academic departments and two other administrative divisions in the college: Department of Mining Engineering and Metallurgy, Department of Geology, Department of Geography, Bureau of Mining Research, and Cart-O-Graphics.

The college is concerned with all aspects of earth science and technology, and the course and curricular offerings have expanded considerably since the college was founded. Following is a list of the academic degrees that have been conferred in our various disciplines; the date following each is the year in which this degree was first conferred. Mining engineering (B.S. 1918, M.S. 1918, Ph.D. 1972); metallurgy, until 1934 (B.S. 1922, M.S. 1920); metallurgical engineering (B.S. 1935, M.S. 1936, Ph.D. 1973); geology (B.S. 1921, M.S. 1922, Ph.D. 1964); geological engineering (B.S. 1935, M.S. 1940); geography (B.S. 1958, M.S. 1968); hydrology (M.S. 1970).

In addition to the advanced degrees listed above, the Graduate School offers work leading to these three degrees: Master of Arts in Teaching Geography, Master of Arts in Teaching Earth Science, and Master of Natural Science with a major in earth science.

The College of Mines offers a very broad spectrum of courses but they all pertain to the earth, to man, and his environment. *Geology,* the "science of the earth" is, to some extent, basic to the other disciplines; it is such a broad subject, however, that most geologists specialize in one branch, paleobotany, petrology, etc. *Geological engineering* is the application of engineering principles to related geologic problems such as location of roads, damsites, and reservoirs. *Hydrology* is concerned with water: surface water, underground water, and water in the atmosphere. Much work is underway on pollution control and land-use planning.

Mining engineering involves more than just the technical processes of removing rock and ore from the earth's surface; for example, rock mechanics, geology of ore deposits, valuation of mineral deposits, mineral economics, and mine ventilation; very important also are mine pollution control and land reclamation techniques. *Metallurgy* is concerned with extracting metals from their ores and producing the myriad shapes of metals and alloys that are used in industry; today much work is being done on two problems: (1) the development of metallurgical processes that will eliminate pollution of air and water, and (2) a search for practical methods of recycling scrap metal.

Geography focuses upon resources, settlement, regional development, and planning to integrate social, physical, and engineering sciences into effective appraisals of man-earth problems. Geography also specializes in cartography (map making) including computerized techniques. In addition, the department is involved in training social studies teachers for the public schools.

The Bureau of Mining Research conducts research on applied problems in the areas of our academic disciplines. This permits our staff to become involved with current problems in the mineral industry and provides a research atmosphere for our students. Major objectives are: (1) to act as a liaison between the academic and industrial worlds, and (2) to meet the needs of the people of the state as represented by the various departments of state and local governments.

Cart-O-Graphics offers design, drafting, and reproduction services for maps and other graphics to illustrate research reports and other publications. The Cart-O-Graphic Laboratory serves the region and state in addition to the university. The laboratory also provides a proving ground for students specializing in cartography.

Equipment and Facilities

Mining Engineering. Facilities and equipment include a rock mechanics and geophysical laboratory equipped with polariscope, strain recorder, electrical resistivity and magnetic units, and other instruments for stress-strain studies of rock structures. Mine surveying instruments, ventilation apparatus, and other mining engineering tools are available. Illustrative material includes maps, drawings, films, and slide collections illustrating mining methods and practices. The greatest assets for laboratory or graduate studies in mining engineering, however, are the deep mines in the Coeur d'Alene district. Mining students who are interested in practical investigations or basic research can usually arrange to gather necessary data at the best source—an operating mine.

Metallurgical Engineering. The extractive metallurgy laboratories are equipped for class instruction and research in ore dressing and process metallurgy. Equipment includes crushers, ball mills, pulverizers, screens and screen shakers, flotation machines, leaching equipment, and various other concentrating machines including a Carpco induced-roll magnetic separator and a high-intensity electrostatic separator. Equipment is available for modern instrumental analysis as well as wet chemical and fire assaying.

Physical metallurgy includes the

metallography laboratory with facilities for polishing and etching metals, alloys, minerals, and ceramic materials for macroscopic and microscopic examination, a variety of microscopes for visual examination of specimens, and a metallograph, cameras, and darkroom for photographic works. The X-ray diffraction laboratory is equipped to handle a large variety of problems in metallurgy, ceramics, and minerology, such as identification of alloy phases and minerals, texture studies, and phase diagram determinations. Other equipment includes melting furnaces, forging hammer, and rolling mill for specimen preparation, heat treating and thermal analysis furnaces, physical and mechanical test instruments, and ceramics fabrication equipment.

Geology and Geological Engineering. 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 appartus, X-ray diffraction and fluorescence equipment, and an atomic absorption spectrophotometer. The electron microprobe of the Idaho Bureau of Mines and Geology is available to advanced students. Also available are several computers, resistivity survey equipment, hammer seismograph, soil drilling and sampling kits, and water-level recorders.

Research laboratories are equipped for work in applied geochemistry, photogeologic analysis and design, engineering geology, and soil testing. Facilities for research in hydrology are also available in other divisions of the university.

Geography. The library maintains a special collection of some 65,000 maps, and the department has extensive holdings of maps and air photos. The geography faculty and students maintain a multi-instrument complex of eight meteorological stations. A computer and calculator are also available for class use. Extensive modern cartographic equipment, a drafting room, and a darkroom are housed in the department; students are taught photograph interpretation, map compilation, model building, air brush work, darkroom techniques, computer mapping, and other computer applications.

Peschel Collection. The Idaho College of Mines has a unique art collection which was given on permanent loan to the college by the heirs of William M. Peschel who lived for many years at Lewiston, Idaho. This contains a number of prints and water colors illustrating the parade uniforms worn by mining officials and workers in Germany about the seventeenth century. In addition to the illustrations, the collection contains a number of the ceremonial axes and canes which were carried by these officials.

Scholarships and Loan Funds

Students having a high academic standing in high school or college should refer to the "Financial Aids" section in part 2 of this catalog. The Hecla-Bunker Hill Scholarships are available to College of Mines students, but not exclusively to them. The following are exclusively for College of Mines students: Newmont Mining Co.—two scholarships which pay $1000 each year for four years (open only to entering freshmen in mining engineering or metallurgical engineering); Mineral Industries Education Foundation—five scholarships which pay $500 each year for four years (open only to entering freshmen in mining engineering or metallurgical engineering); ASARCO Foundation—one $750 scholarship (open to a currently enrolled sophomore or junior); Idaho Mining Memorial Scholarship (open to entering students); A. E. Larson Scholarships (open to currently enrolled students); W. W. Staley Scholarship (open to currently enrolled students in mining engineering); out-of-state tuition waivers (open to new students who are not residents of Idaho); Albert Hall Featherstone Scholarships (open to currently enrolled graduate students); the Laney and J. J. Day loan funds are restricted to College of Mines students. For further information, write to the Office of Student Financial Aids, University of Idaho.

Teacher Education Program

Students in the College of Mines who are preparing for secondary-school teaching should consult the information about the Teacher Education Program further on in this part 4 of the catalog.

General Requirements and Undergraduate Curricula

University Requirements. See general 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.

Curricula. Unless otherwise specified, each of the following programs of study requires 128 credits and includes the departmental and general requirements as set forth above.

GEOGRAPHY (B.S.Geog.)

Course	Credits
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Geog 100 Man's Physical Environment	4
Geog 140 Economic Geography	3
Geog 250 World Regional Geography	3
Geog 265 Cultural Geography	3
Geog 380 Cartography	3
Geog 490 Trends in Geography	3
One 3-cr geography elective to be selected from each of the following series: 401-422, 430-449, 450-469	9
Additional approved electives in geography	9
Econ 251-252 Prin of Econ; *or* Geol 101-102 Phys Geol & Lab, and either Phys 101 Fund of Phys Sci, *or* Phys 113, 115 Gen Phys & Lab	6-8
One yr college-level foreign lang; *or* Engr 131 Digital Comp Prog *and* one of the following: Ag 321 Biometry, Bus 231 Statistics, *or* Psych 217 Intro to Statistics	4-8
Physical education activities	2
Approved electives in related fields	24
Approved electives to total 128 cr for the degree	—

GEOGRAPHY (B.A. or B.S.)

See these curricula in the College of Letters and Science section.

GEOLOGY (B.S.Geol.)

Course	Credits
Ag 321 Biometry	3
Biol 100 Man & the Environment, *or* 201 Intro to the Life Sciences	4
Chem 111 Principles of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal	5
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Eng 317 Technical and Engineering Report Writing	3
Geog 380 Cartography	3
Geol 101, 102 Physical Geol & Lab	4
Geol 106, 107 Historical Geol & Lab	4
Geol 211 Ancient Life, *or* 417 Advanced Paleonotology	3-4
Geol 255 Mineralogy	2
Geol 265 Lithology	2
Geol 301 Field Geol & Report Writing	6
Geol 335 Geomorphology	3
Geol 345 Structural Geology	3
Geol 365 Igneous & Meta Rocks	2
Geol 425 Sedimentology	2
Geol 426 Stratigraphy	2
Geol 465 Optical Mineralogy	2
Geol 467 Petrography	2
Math 140 Coll Algebra	3
Math 180 Anal Geom & Calc I	4
Phys 113-114-115-116 Gen Phys & Lab, *or* 220, 221, 222 Engr Phys I, II, III (*or* upper-div courses in biological sciences with perm of adviser)	8-9
Physical education activities	2
Humanities and/or social sc electives	12

Plus one course in computer programming, the equivalent of one year of college-level study of a foreign language, and approved electives to complete the total of 128 credits for the degree.

GEOLOGICAL ENGINEERING (B.S.Geol.E.)

Course	Credits
Chem 111 Principles of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal, *or* 114 General Chemistry	4-5
Chem 302 Prin of Physical Chemistry, *or* ES 321 Thermodynamics & Heat Transfer	3
CE 112 Elementary Surveying	2
CE 486 Engineering Economy	3
Econ 251 Principles of Economics	3
EE 200 Systems & Circuits I	3
Engr 120-121 Engr Anal & Design I-II	4
Engr 131 Digital Comp Programming	2
ES 211 Intro to Mechanics	4
ES 221 Dynamics of Rigid Bodies	2
ES 320 Fluid Mechanics	3
ES 340 Mechanics of Materials	3
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Geol 101, 102 Physical Geol & Lab	4
Geol 106, 107 Historical Geol & Lab	4
Geol 255 Mineralogy	2
Geol 265 Lithology	2
Geol 301 Field Geol & Report Writing	6
Geol 335 Geomorphology	3
Geol 345 Structural Geology	3
Geol 365 Igneous & Meta Rocks	2
Geol 425 Sedimentology	2
GeolE 435 Intro to Geological Engr	3
Math 180, 190, 200 Anal Geom & Calc	11
Math 310 Ordinary Diff Equations	3
Phys 221, 222 Engr Physics, *or* 113-114-115-116 Gen Phys & Lab	6-8
Humanities and/or social science electives	15

The following courses are recommended electives for those students wishing to specialize in the areas indicated:

Mineral Exploration

Geol 475 Mineral Deposits	4
Geol 476 Explorational Geology, *or* ID485 Geochemical Exploration	3
Min 103 Elements of Mining	2
Min 401 Rock Mechanics	3

Construction

CE 460 Soil Mechanics	3
GeolE 436 Geological Engr Design	3
Min 103 Elements of Mining, *or* 391 Mining Principles	2-3
Min 401 Rock Mechanics	3

Hydrogeology

AgE 351 Hydrology	2
CE 460 Soil Mechanics	3
Geol 409 Ground Water	3
GeolE 436 Geological Engr Design	3

The minimum number of credits required for the degree is 134.

METALLURGICAL ENGINEERING (B.S.Met.E.)

Note: A sequence of technical electives should be chosen before the first technical elective course is taken. All electives must be approved by the student's adviser.

Course	Credits
ChE 323 Material & Energy Balances	3
Chem 111 Principles of Chemistry	4
Chem 112 Inorganic Chem & Qual Anal, *or* 114 General Chemistry	4-5
Chem 305-306 Physical Chemistry	6
EE 200 Systems & Circuits I	3
EE 314 Electronics & Control Systems	4
Engr 101 Engineering Graphics	2
Engr 120-121 Engr Anal & Design I-II	4
Engr 131 Digital Comp Programming	2
ES 211 Intro to Mechanics	4
ES 320 Fluid Mechanics	3
ES 321 Thermo & Heat Transfer	3
ES 340 Mechanics of Materials	3
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3

(Continued on next page)

Eng 317 Tech & Engr Report Writing, *or* 313 Business Writing 3
Math 180, 190, 200 Anal Geom & Calc 11
Math 310 Ordinary Diff Equations 3
Met 102 Materials & Their Manufacture 1
Met 201 Elements of Materials Science 3
Met 202 Apparatus & Practices 2
Met 308 Intro to Metallurgic Thermo 3
Met 400 Seminar 2
Met 412 Mechanical Metallurgy 2
Met 413 Physical Metallurgy 4
Met 414 Metallurgical Design 2
Met 441 Ore Dressing 4
Met ID442 Extractive Metallurgy 4
Min 103 Elements of Mining 2
Phys 221, 222 Engr Physics II, III 6
Physical education activities 2
Mathematics elective (one upper-div course or equiv) 3
Humanities and social science electives 17
Metallurgy electives 3
Technical electives 7-8

The minimum number of credits required for the degree is 136.

MINING ENGINEERING (B.S.Min.E.)

Note: Approved field experience, appropriate summer employment, or an applied course in mine surveying and geologic mapping is required before graduation.

Course	Credits
Chem 111 Principles of Chemistry	4
Chem 114 General Chemistry	4
CE 211 Engineering Measurements	4
EE 200 Systems & Circuits I	3
EE 314 Electronics & Control Systems, *or* 324 Electrical Machinery	3-4
Engr 101 Engineering Graphics	2
Engr 120-121 Engr Analysis & Design	4
Engr 131 Digital Computer Prog	2
ES 211 Intro to Mechanics	4
ES 320 Fluid Mechanics	3
ES 321 Thermo & Heat Transfer	3
ES 340 Mechanics of Materials	3
Eng 103 Basic Skills for Writing	3
Eng 104 Essay Writing	3
Eng 317 Tech & Engr Report Writing, *or* 313 Business Writing	3
Geol 101, 102 Physical Geol & Lab	4
Geol 225 Mineralogy	2
Geol 265 Lithology	2
Geol 345 Structural Geology	3
Math 180, 190, 200 Anal Geom & Calc	11
Math 184 Elements of Linear Algebra, *or* approved upper-division math course, *or* equivalent	2-3
Math 310 Ord Diff Eq, *or* approved upper-division math course, *or* substitute	3
Met 201 Elements of Materials Science	3
Met ID442 Extractive Met, *or* 441 Ore Dressing	4
Min 103 Elements of Mining	2
Min 218 Mine Rescue & First Aid	1
Min 352 Mine Management	3
Min 372 Mine Ventilation II: Quan & Qual Control	2
Min 390 Mine Development	2
Min 391 Mining Principles	3
Min 401 Rock Mechanics	3
Min 470 Mine Services	3
Phys 221, 222 Engr Physics II, III	6
Physical education activities	2
Technical electives in mining engineering/ metallurgy (with the approval of the department head, one of these courses may be from another department)	7
Approved humanities and social science courses (consult departmental office for official list)	17

The minimum number of credits for the degree is 136.

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 utilize unique areas of knowledge 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 current time schedule. In addition, the two schools cooperate in programs in medicine and veterinary medicine.

Medical Education (WAMI Program)

Guy R. Anderson, Director, Idaho WAMI Program (112 Life Sc. Bldg.).

In the WAMI Program, offered by the University of Washington School of Medicine and selected universities and communities in Washington, Alaska, Montana, and Idaho (WAMI), medical students from Idaho receive the first year of their medical training at the University of Idaho. Students attend classes at the University of Idaho and Washington State University, thus benefiting from a large group of instructors and varied selection of elective courses; laboratories and other facilities for individual work are available at both institutions. After completing the second year of the basic curriculum at the University of Washington School of Medicine, the student continues in a program of electives during the third and fourth years which may be taken entirely at the University of Washington School of Medicine or which may include participation in any of fourteen community clinics in the four participating states. Six-week clerkships in these community clinics, supervised by local physicians at the office and in the hospital, offer the student a realistic approach to the problems of medical practice.

Veterinary Medical Education

Floyd W. Frank, Dean, Idaho Faculty of the Northwest College of Veterinary Medicine (22 Veterinary Science Bldg.).

The University of Idaho cooperates with Washington State University in a program of veterinary medical education, research, and service. In this program, students from Idaho take the first three years of professional training in veterinary medicine at Washington State University; faculty members of both universities offer instruction in the professional and academic curricula. In the fourth year of the program, students receive part of their clinical training at a veterinary medical facility at Caldwell, Idaho, where they can specialize in preventive food-animal medicine. Cooperative graduate programs leading to M.S. and Ph.D. degrees are also available. Applicants for admission to the professional curriculum should address the Director of Admissions, Washington State University; applicants for admission to the academic curricula should address the graduate schools of both universities.

Idaho National Engineering Laboratory

In cooperation with other universities in the state and region, with the Energy Research Development Administration, and with others, the University of Idaho participates in graduate and undergraduate programs at the Idaho National Engineering Laboratory at Idaho Falls, Idaho. For more information, see "Special Programs" further on in this part 4 of the catalog.

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 Energy Research and Development Administration for graduate students and faculty to spend periods of time, up to one year, at a number of these laboratories pursuing research projects.

Interuniversity Program in Public Administration

H. Sydney Duncombe, Chairman, Department of Political Science and Public Affairs Research (207 Admin. Bldg.).

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, administrative theory, organization and behavior, public management techniques, and administrative law, may be taken at any of the participating institutions without restriction. For further information, consult the chairman of the Department of Political Science and Public Affairs Research.

Interinstitutional Doctoral Program

An interinstitutional doctoral program in home economics (child development and family life) is in the process of development. For further information, consult the director of the School of Home Economics.

Teacher Education Program

Everett V. Samuelson, Dean, College of Education (301 Educ. Bldg.)

THE PREPARATION OF TEACHERS is a cooperative enterprise between the College of Education and other divisions of the university. Overall coordination is achieved through the Teacher Education Coordinating Committee which is made up of representatives from the professional and academic areas involved. However, the screening of all applicants for admission to, or continuance in, the Teacher Education Program 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 teaching have the option of completing their bachelor's degree in the College of Education (except for agricultural education, home economics education, and music education) or in the department of their subject major.

Admission to the Program

Upon completion of the first semester of the sophomore year, or forty semester credits, all teacher-education students must make application for admission to, or continuance in, the Teacher Education Program. A standing committee of the College of Education reviews each applicant's total record and presents its recommendations to the dean of that college. The approval of the dean of the College of Education is required for admission to, or continuance in, the program. Admission to the Teacher Education Program does not carry with it permission to enroll in senior practicum. Additional procedures and requirements apply, as noted in the information under "Senior Practicum" in the College of Education section of this catalog, and as noted in the prerequisites to the specific courses in senior practicum.

Advising

Teacher education students have two advisers: one from the subject-matter department and one from the College of Education. 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 the teacher education program) the advisers are designated. They plan and approve a program of studies for the student. So long as the approved program is followed, only the student's college adviser is required to sign the registration cards. Changes in the program require the signature of both advisers. Exceptions to this rule are students majoring in a subject-matter area in the College of Education, students in the Department of Agricultural Education, the School of Home Economics, and the School of Music, who have advisers in their subject-matter areas only.

Certification for Secondary-School Teaching

Students admitted to the teacher education program who are enrolled in a department or college not offering major studies in teacher education normally satisfy the requirements for the Idaho Standard Secondary-School Certificate by including the 20-credit 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; (4) two 30-credit teaching majors; or (5) one 45-credit teaching major. (See "Teaching Majors and Minors" at the conclusion of the College of Education section.)

20-Credit Core. Developmental or Educational Psychology, 3 cr (Psych 205 or Ed 415); Strategies for Teaching, 2cr (Ed 314); Special Methods, 2 cr (Ed 315, 316, 317, 318, 319, 341, or another approved special methods course); Proseminar in Teaching, 1 cr (Ed 445); Practicum, 9 cr (Ed 431 or another approved practicum course); Contemporary Education, 3 cr (Ed 468). *Note:* Psych 100, Intro to Psychology, is the prerequisite for Psych 205; however, in most programs this course may be counted among the general requirements in social sciences.

Exceptions. Teacher education students majoring in the College of Education, the Department of Agricultural Education, the School of Home Economics, or the School of Music have slightly different requirements. See the curricula for these fields in their appropriate college sections.

Procedures. The college in which the student is enrolled initiates the application for teacher certification. The subject-matter adviser and the professional education adviser each sign the necessary forms and forward them to the dean of the College of Education. The dean, in turn, works with the registrar to get the necessary supporting credentials and forwards the material to the proper certification office. 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.

The College of Education reserves recommendations for certification to students who have completed four years of preparation and hold a bachelor's degree.

Center for Native American Development

Jack R. Ridley, Director (Center for Native American Development, 730 Deakin Ave.); John S. Morris, Assistant Professor.

THE CENTER for Native American Development was established in 1972 to provide class and research instruction in native American resources and resource development. The overall objective of the center is to develop the management skills and capabilities of native students and tribal leaders through teaching, research, and service. The center also serves to broaden the understanding with tribal governments and the state of Idaho in economic planning for human and natural resource development, to assist tribal educators and committees toward a more effective and responsive educational system for native students, and to maintain communications with federal and native organizations that are concerned with current native American affairs. Supporting courses and directed study in native American affairs are also available through the center for all students in the university.

Graduate School

Edgar H. Grahn, Dean of the Graduate School (108 Morrill Hall).

THE GRADUATE SCHOOL was formally organized in 1925, but the University of Idaho has offered advanced degrees for eighty years, awarding the first master's degree in 1897. The Graduate School encompasses seven colleges and more than fifty departments and subject areas. This coverage of all regular disciplines and professional fields provides in one location a wide variety of academic work. Enrollments are large enough to provide the critical mass of students and faculty necessary for graduate programs and yet sufficiently small to permit close faculty-student relationships. Interdepartmental cooperation is an important factor on the Idaho campus which is also the research center for the state.

Degree programs are offered in seventy-five areas for the master's degree, in six for professional degrees, and in twenty-two for the doctoral degree. Specific degree offerings are given in the catalog of the Graduate School, which also provides detailed information about the Graduate School, appointments, financial aids, library, research facilities, and procedures.

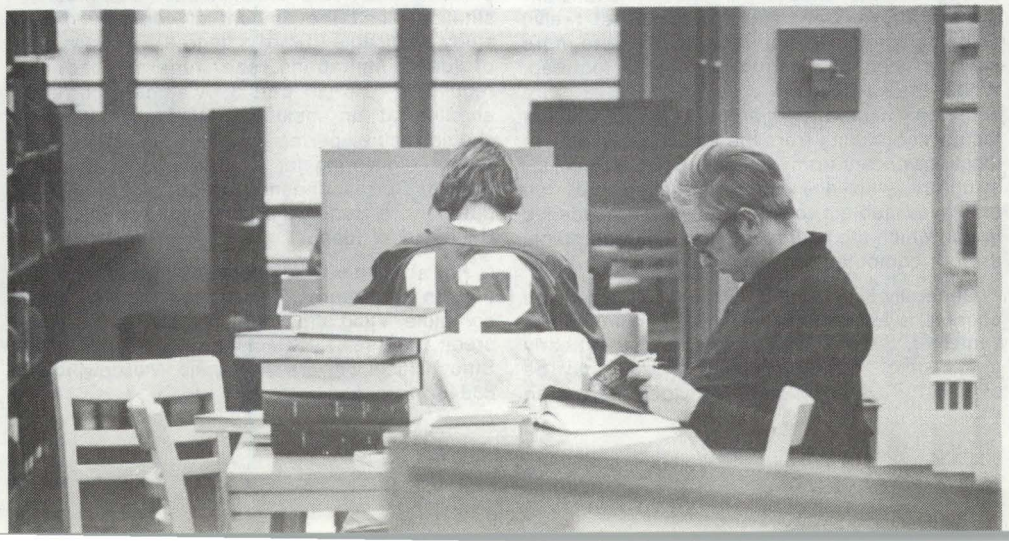
Undergraduate Enrollment in Graduate Studies (Partial Enrollment)

A senior in residence who is within twelve credits of completing the requirements for the baccalaureate degree, and who meets the requirements for admission to the Graduate School, as set by the university and the department concerned, may apply for admission to partial enrollment in the Graduate School. On a form provided, a course registration plan designating undergraduate and graduate courses is submitted with the application for admission.

Admission in advance of registration permits certain courses to be designated for graduate credit. Capable students can thus begin graduate work at an earlier date than would otherwise be possible. Qualified seniors will normally be in their last semester when applying for partial enrollment. In some cases, a maximum of two semesters of partial enrollment may be desirable in order to permit study of courses in sequence.

Seniors in 500's Courses

A senior with at least a 3.00 grade point average may enroll in one course a semester at the 500's level with permission of the instructor and the dean of the Graduate School (dean's signature on the undergraduate registration card is required). Credits so earned while a senior are for undergraduate purposes and may not be offered later for an advanced degree. No undergraduate student may enroll in the cooperative graduate courses offered with Washington State University.



Continuing Education, Summer Sessions, and Special Programs

Hobart G. Jenkins, Director of Continuing Education (112 Guest Residence Ctr); Paul F. Kaus, Director of Summer Sessions/Special Programs and Associate Director of Continuing Education (114 Guest Residence Ctr.); Susan S. Burcaw, State Coordinator of Correspondence Study (106 Guest Residence Ctr.).

CONTINUING EDUCATION is administratively separate from the Office of Summer Sessions and Special Programs. However, since these programs are similar in their service roles to off-campus and part-time students, they are described together in this section of the general catalog.

Continuing Education Programs

Continuing education programs again became the direct responsibility of the individual institutions of higher education in July 1974 when the state-wide Division of Continuing Education, as such, was disbanded. As the program now exists, working cooperatively with Lewis-Clark State College and North Idaho College, the University of Idaho has prime responsibility for continuing education programs in northern Idaho. Further, the University of Idaho may offer continuing education programs in southern and eastern Idaho in subject and program areas where other public institutions do not have programs or services available. The decision on whether the University of Idaho or one of the other public institutions should offer a given continuing education program in any section of the state will be made by the continuing education officer in the Office of the State Board of Education at Boise.

Requests for continuing education services in any section of the state may initially be directed to the above-named director.

Extension Courses. Courses of this type offer University of Idaho credit and are available throughout the state within the limitations indicated above. Generally a minimum of twelve students is required to offer a course, and more may be needed if instructor travel is required. Within the north Idaho area, 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 highly qualified may be employed subject to approval of the academic unit in which the course is offered. Grade points are not computed for extension course credits.

Generally, no single catalog of extension courses is available prior to the beginning of a semester. Instead, it is simply noted that nearly any course in the university catalog may be offered for extension credit provided there is an adequate number of students, a qualified instructor, and appropriate facilities are available. The schedule of courses in any geographic area is generally developed near the beginning of each semester and summer session. Since these courses are developed in response to local needs and interests, individuals interested are urged to contact the Continuing Education Office a month or two prior to the term in which the course is proposed to be offered and indicate their specific interest in a given subject and provide some observations on the number of other individuals who may be interested in the same course in the geographic area.

Most higher education institutions, including the University of Idaho, restrict the amount of extension credit that is applicable toward a degree. Since the acceptability of this type of credit varies among institutions, and to some extent within institutions for specific degree programs, individuals attempting to apply extension credit toward either undergraduate or graduate degrees should check with their own college or university. For University of Idaho general requirements on the acceptability of extension credits, see general academic regulation "J-5" in part 3.

Admission procedures for enrolling in extension 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 registrations may be requested. Standards for admission to extension courses are generally the same as admission for credit courses on campus. Exceptions to requirements will often be made in the event students are enrolled for audit or zero credit. Students regularly enrolled in residence are not allowed to also enroll in an extension course without prior approval.

Correspondence Study. Many University of Idaho courses are also offered through correspondence study. Each course parallels its campus counterpart in content and credits and may be started at any time with one year for completion. As is true of extension courses, most institutions limit the amount of correspondence study applicable toward a degree. For University of Idaho limitations, see general academic regulation "J-5" in part 3. A student currently enrolled at an institution of higher learning should receive permission from his or her dean before registering for a correspondence study course. Correspondence grades are not computed in the student's grade-point average at the University of Idaho.

For a bulletin which contains further information on procedures, registration blanks, and a complete listing of college, high school, and noncredit courses, contact the Correspondence Study Office, University of Idaho, Moscow, Idaho 83843.

Coeur d'Alene Adult Education Center. A summer program is available at Coeur d'Alene which offers University of Idaho resident credit. The session lasts eight weeks with some short-courses and workshops accelerated within that time period. Generally, a minimum of twelve students is required to offer a course, and qualified faculty must be available. Most of the courses are offered on the North Idaho College campus, and a local coordinator is employed to help supervise the operation.

To the extent that appropriate courses are available, students may complete all of the work required for a baccalaureate degree with the exception of sixteen of the last forty credits at the Coeur d'Alene Adult Education Center. After a candidate is within forty credits of the number of credits required for the degree, he or she must complete in residence on the University of Idaho campus in Moscow a minimum of sixteen credits (practicum, internship, and similar courses may not be counted among the minimum of sixteen). Among the remaining twenty-four credits, the student may count a maximum of eight credits earned at other senior colleges or universities, or through any of the following means: extension, correspondence study, bypassed courses, credit by examination, College Level Examination Program (CLEP), external study/experience, technical competence, or certain educational programs sponsored by the armed forces.

Anyone interested in enrolling in the summer program at Coeur d'Alene should contact the Continuing Education Office on the University of Idaho campus.

Cooperative Graduate Center, Boise. In cooperation with other institutions of higher education offering graduate level programs, the University of Idaho participates in the Cooperative Graduate Center which offers courses in the Boise-Caldwell area. Under this arrangement, students are allowed to register and receive credit from the participating institution of their choice, providing that that institution has approved the course and instructor. The program at the University of Idaho is offered under the general supervision of the Graduate School. Anyone intending to complete an advanced degree through this program must apply and be admitted to the University of Idaho Graduate School. Others may be admitted to the cooperative center courses as nonmatriculated students which does not require transcripts from institutions previously attended.

The Office of the State Board of Education at Boise helps to select the courses that may be offered in any given semester. Thus, students interested in enrolling in the Cooperative Graduate Center are encouraged to contact the Continuing Education Officer in the Office of the State Board of Education or the Continuing Education Office at Idaho State University, Boise State University, or the University of Idaho. Once a schedule is established, it is the responsibility of the respective institutions to publicize, make arrangements for advising, complete registration, etc., for students registering with their institution. At the University of Idaho, administrative arrangements for these details are handled by the Office of Continuing Education, and further information about the program may be sought from that office.

Conferences, Workshops, and Shortcourses. In addition to the credit programs reported above, a wide variety of continuing education noncredit programs can be arranged through the Continuing Education Office. These may range from the leisure and aesthetic type activity to highly specialized technical subjects at the postgraduate degree level. Generally, offerings of this kind are limited to those that are defined as higher education level and to those subject areas in which the University of Idaho has expertise available.

Such workshops and shortcourses may be offered anywhere in the state of Idaho if it is determined that the University of Idaho has unique capability to sponsor such continuing education activities. Fees vary widely with the nature of the offerings, although there is usually a specified limited enrollment for any given offering. Generally, unless outside funding is available, offerings of this kind are on a self-supporting basis which means there must be sufficient income to cover all costs. Because of the wide variety of types of programs that can be offered, anyone interested is urged to contact the Continuing Education Office with specific requests and to indicate a potential audience in the geographic area that may be interested. Once a program has been tentatively scheduled, special announcements are mailed out utilizing a mailing list which is believed to include those most likely to be interested in enrolling.

Summer Sessions

An eight-week summer session is scheduled each year, normally starting about the second week in June. In addition, pre- and post-session courses may be offered through the Special Programs Office, some of them on a self-supporting basis. During the eight-week session, many courses are accelerated into one-, two-, or three-week concentrated sessions, thus allowing students to complete a course in less than the full eight weeks. Many recreational and cultural activities are scheduled through the Summer Recreation Office, as well as programs presented through the School of Music and the Department of Theatre Arts. Special programs for high school age students are also available in the areas of journalism, music, computer programming, and several others.

Academic regulations included in this catalog

are applicable during the summer session. Anyone interested in enrolling is invited to write the Office of Summer Sessions for a copy of the summer bulletin which is published each year in late February or early March. The bulletin contains complete information needed to register for the summer session.

Special Programs

Intersession, Presession, and Postsession Programs. The Special Programs Office is authorized to offer self-supporting programs during the break between semesters and at other times when the university is not regularly in session. In addition, the office may offer courses during regular sessions when the course is designed for a specific group of students and offered for a shorter period of time than the regular semester or summer session. In short courses offered for credit, students are generally allowed to register and earn credits at the rate of one per week. Courses offered are those approved for credit by the appropriate academic unit, and faculty are generally members of the regular staff or others who have been approved by the academic unit. Generally twelve students are required to offer a special-programs course, although special arrangements can be made for individual-study type courses such as directed study, etc. People interested in enrolling in courses of this kind on campus should contact the Special Programs Office and indicate a specific interest.

INEL Education Program. The undergraduate portion of the education program at the Idaho National Engineering Laboratory at Idaho Falls is supervised by the Special Programs Office. The graduate portion of the same program is supervised by the Graduate School. The program offers resident credit with enrollment generally limited to contractor employees of the Energy Research Development Administration. Courses are offered each semester, but no summer program is scheduled.

Applicants must meet requirements for admission to the University of Idaho. If appropriate courses are available, students may complete all of the work required for a baccalaureate degree at the INEL Education Center. (See "residence requirements" in general academic regulation "J-2-a" in part 3).

The program is administered by a resident director at Idaho Falls. For further information on specific courses available, write INEL Education Program, 550 Second Street, Idaho Falls, Idaho 83401.

INEL Certificate Program. Students enrolled at the INEL Education Center who complete the required courses with a grade point average of 2.00 or better and who pass an examination in the field of concentration may be awarded the Certificate of General Proficiency. Students who maintain a grade point average of 2.75 or better are exempted from the final examination. The program of studies for each area of concentration has been approved by the appropriate subject matter department at the university and by the University Curriculum Committee and generally includes between twenty-four and thirty-three semester hours of course work.

The certificate program should not be confused with the degree program. The program represents a limited amount of specialization in a restricted and specified series of courses. The significance of the certificate is dependent on its acceptance and support by the contractor employer at the INEL site and other individuals.

Credit earned while enrolled in the certificate objective may also be applied toward a degree if the candidate is otherwise eligible under regular university requirements.

Officer Education Program

Hugh P. Williamson, Chairman, Officer Education Committee (Department of Business); Col. Richard C. Stockton, Head, Department of Naval Science (101 Navy Bldg.); Lt. Col. John N. Vanderschaff, Head, Department of Military Science (103 Memorial Gymnasium).

THE OFFICER EDUCATION PROGRAM (OEP) is offered at the University of Idaho by the departments of Military Science (Army OEP) and Naval Science (Navy-Marine OEP). For University of Idaho students interested in Air Force OEP, a cooperative program in aerospace studies is currently being developed with Washington State University.

The purpose of OEP is to prepare selected students to serve as commissioned officers in the Air Force, Army, Navy, and Marine Crops. This program constitutes the largest single source of trained officers for both the reserves and regular forces. Successful completion of requirements for both a baccalaureate degree and OEP study programs leads to a commission in the armed forces.

General Information

The two OEP departments offer, on a selective basis, four-year and two-year OEP programs. Under the provisions of present laws, the two services offer scholarships to selected students each year in a nation-wide screening and testing program. The financial assistance that is provided in conjunction with these OEP scholarships includes tuition, books, and all standard fees listed in the catalog, except room and board. In addition, students receive subsistence pay of $100.00 per month. The Army offers one-, two-, three-, and four-year scholarships; the Navy offers four-year and two-year scholarships. Nonscholarship students receive $100.00 per month during their final two years of OEP instruction only. Uniforms and textbooks for all OEP courses are provided at no cost.

Students who qualify and who plan to enter flight training as military pilots after being commissioned, may apply for participation in the flight instruction program offered locally by each OEP department. Successful completion of this program meets most requirements for a private pilot's license.

Information concerning the specific courses in military science and naval science may be found in part 5. Each program is further explained below. Inquiries are welcomed and should be addressed to the respective OEP office.

Aerospace Studies

For information concerning the cooperative Air Force OEP program at Washington State University, consult the University of Idaho Office of the Academic Vice President.

Military Science

Army OEP is basically a study in leadership and management, applicable to either a civilian or military career. During the first year, students are instructed in the fundamentals of leadership and management, and, in the sophomore year, in applied leadership and management. In the advanced course (junior and senior years), the student progresses to advanced leadership and management and participates in seminars in the same field of study. At the end of the junior year, students attend a six-week summer camp at an Army post where those leadership and management principles learned in the OEP classroom are put into actual practice.

Two-Year Program. Specifically designed for the junior college student, but available to others, is a two-year program of study in which students initially attend a six-week encampment in lieu of the first two years of college OEP. This is followed by the study of advanced leadership and management seminars in the junior and senior years of college or university work.

Naval Science

The Navy-Marine OEP offers full and part scholarships leading to commissions and active duty as Navy or Marine Corps officers. Normally, students enter the program at the beginning of the freshman year; however, selected students may enter later, up to the beginning of the junior year. Students take twenty-two hours of professional courses taught by Navy or Marine Corps officers. Special provision for meeting freshman and sophomore requirements is made for students entering the program in their junior year. Following graduation, a broad variety of duty assignments is available to the newly commissioned officer, including duty on nuclear submarines and surface ships, in naval aviation, supply corps, civil engineer corps, and ground or aviation assignments in the Marine Corps. A limited number of graduates continue in graduate education programs.

Full Scholarship Program. Application for this program is normally made during the fall of the student's senior year of high school or freshman year of college. Initial selections are based on college entrance examination scores (SAT or ACT) and high school academic performance. A student on full scholarship participates in three summer training cruises of six to eight weeks' duration. The first and third cruises are afloat aboard ships of the Pacific or Atlantic Fleet and often include travel to Europe or the Far East. During the second cruise, students are introduced to submarine, amphibious warfare, and

Facing page: College of Mines students in mine rescue course, circa 1925.

aviation specialties. Full scholarship benefits include tuition, fees, books, and a $100.00 per month retainer. During summer cruises, the students receive one half the pay of an ensign, in addition to room and board. Graduates of this program are commissioned as regular officers in the Navy or Marine Corps.

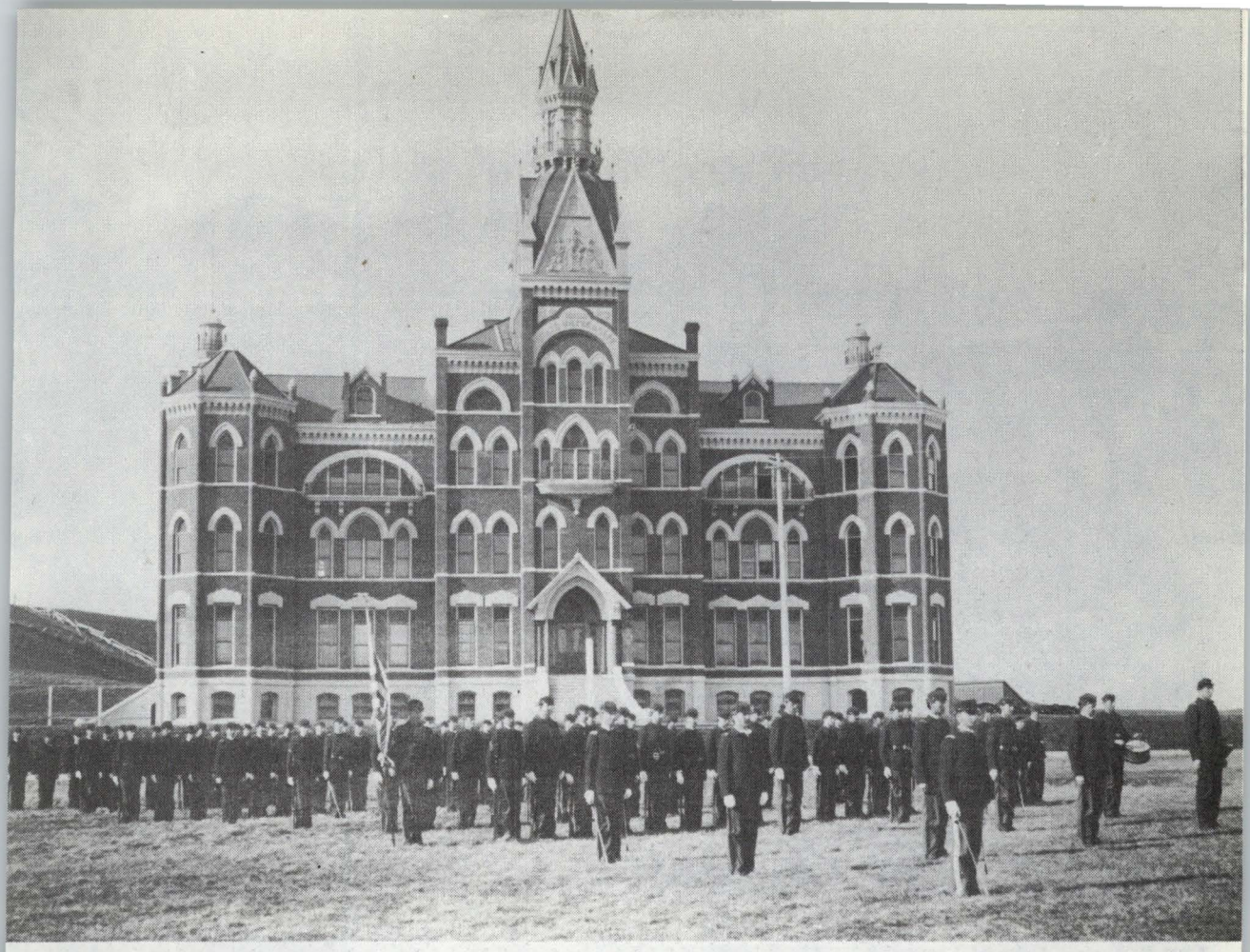
Part Scholarship Program. Application for this program is made directly to the head of the Department of Naval Science. Students receive their uniforms and naval science textbooks at no cost and begin receiving monthly subsistence pay of $100.00 per month at the beginning of the junior year. Part scholarship students may be nominated by the Professor of Naval Science to the Chief of Naval Education and Training for a full scholarship, if their grades and military aptitude marks are considered as qualifying. The program requires one training cruise during the summer following the junior year. It is an afloat cruise of the same type and with the same pay as described for the full scholarship program. Graduates of this program are ordered to active duty with reserve commissions.

Marine Corps Option. Both full and part scholarship 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 classes on Marine Corps subjects during their junior and senior years and participate in summer training conducted at the Marine Corps Schools at Quantico, Virginia, during the summer following the junior year.

Two-Year Program. Navy-Marine Corps full and part scholarship 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 the junior and senior years of the naval science curriculum. Candidates in the two-year program will participate in one afloat cruise between their junior and senior years. Applications must be submitted early in the second semester of the sophomore year. The top twenty percent of the NSI graduates are awarded a full scholarship for their last two years of college. The remaining graduates receive part scholarships.

Field Trips. Field trips to Navy and Marine Corps facilities are arranged periodically in order to allow the Navy/Marine Corps OEP members the opportunity to learn more about the Naval service.

Facing page:
Top: Battalion of cadets in front of the Administration Building, 1896.
Bottom: Cadet corps unit of women students (Company C), 1897.




185
DEPRESSION SPECIAL


FIELD
DAY
1893
RELAY RACE
Compliments
of the

Course Numbering System and Key to Abbreviations and Symbols

SUBJECT FIELDS IN THIS SECTION are listed in alphabetical order. Courses within certain subject fields are presented in subgroups. For example, in the foreign languages and literatures course section, all French courses are together, all German courses are together, etc.

Numbering System

Courses numbered 010-099 are high-school-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 Graduate School (see general regulation "B-8" in part 3 for the exception to this rule); courses numbered 800-999 are of a highly professional and technical nature which count toward a professional degree only (e.g., Juris Doctor, NOT toward academic degrees such as M.A., M.S., Ph.D.).

Letter Designations with Numbers

Certain course numbers also include letters preceding the arabic number, e.g., R101, X100, etc:

C—offered by correspondence study only.

ID—cooperative course with Washington State University offered at the University of Idaho and available to WSU students.

N—offered in the National Science Foundation program only.

R—offered only in the educational program of the Idaho National Engineering Laboratory at Idaho Falls.

WS—cooperative course with Washington State University offered at WSU and available to University of Idaho students.

X—although any course may be offered by extension, those identified with X as a part of the number are normally offered by extension only.

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 without restriction as to maximum.

Other Abbreviations

Alt/yrs—offered alternate years (the academic year to be offered is usually shown)

Coreq—corequisite

Cr—credit

Dem—demonstration

Disc—discussion

Div—division

Equiv—equivalent

Grad—graduate

Hr—hour

Lab—laboratory

Lec—lecture

Max—maximum

Perm—permission of instructor

Perm of dept—permission of the department or subject-field chairman

Prereq—prerequisite

Rec—recitation

Soph—sophomore

Wk—week

Yr—year

Facing page:
Top: March brothers in front of their "Depression Special."
Bottom: 1893 track and field relay team.

Accounting

Bruce P. Budge, Dept. Head (209-G Admin Bldg.). Faculty: Bruce P. Budge, Robert W. Clark, Melvin G. Jolly, Harold L. Jones, Robert G. Reynolds, Jack F. Truitt, Glen G. Utzman.

ADVANCED PLACEMENT: Courses in this subject field which are vertical in content are: 201-202-301-302-401-402.

Acctg **200** (s) **Seminar** (cr arr). Prereq: perm.

Acctg **201 Principles of Accounting** (3 cr). Description and derivation of the primary financial statements prepared by accountants; accounting rationale; reports to stockholders and other investors; intro to other accounting courses and terminal course in financial accounting. Also offered by correspondence study.

Acctg **202 Managerial Accounting** (3 cr). Principles of cost determination and control of manufacturing activities; managerial use of cost information for planning and control; cost-profit-volume analysis; job-order costs; process costing; standard costs; budgeting; responsibility accounting; transfer prices; capital budgeting. Also offered by correspondence study. Prereq: 201.

Acctg **203** (s) **Workshop** (cr arr). Prereq: perm.

Acctg **204** (s) **Special Topics** (cr arr).

Acctg **281 Financial and Administrative Accounting** (3 cr). For nonmajors; not open for cr to majors. Structure of accounting theory, using information in financial statements, accounting for management control, and in making decisions. Prereq: 202.

Acctg **299** (s) **Directed Study** (cr arr). Prereq: perm.

Acctg **301 Intermediate Accounting** (3 cr). Review of fundamental accounting process; classification and valuation problems relating to current and noncurrent assets; accounting principles and conventions used to govern valuation and procedures for statement presentation. Prereq: 202.

Acctg **302 Intermediate Accounting** (3 cr). Continuation of Acctg 301. Accounting principles involved in the presentation of the liability and owners' equity sections of the balance sheet; analysis of financial statements and statements of source and application of funds. Prereq: 301.

Acctg **385 Costs: Concepts and Methods** (3 cr). Methods of specific order, process, and standard costing, overhead allocation. Prereq: 202 and jr standing.

Acctg **395 Fundamentals of Accounting** (4 cr). Primarily for students in the M.B.A. program. Financial statements, limitation of data, partnership and corporate accounting, financial and cost analysis, and interpretation. Prereq: perm.

Acctg **400** (s) **Seminar** (cr arr). Prereq: perm.

Acctg **401-402 Advanced Accounting** (3 cr). Acctg 401: partnerships, fiduciary, estate, trust, government, and institutional accounting. Acctg 402: installment sales, agency, branch, consolidation, mergers, and holding company accounting; foreign currencies and price-level changes. Prereq: 302.

Acctg **403** (s) **Workshop** (cr arr). Prereq: perm.

Acctg **404** (s) **Special Topics** (cr arr).

Acctg **483 Federal and State Taxes** (3 cr). Income-tax law in relation to individuals; determination of gross income, business deductions, other deductions, and exclusions; determination of tax liability and preparation of tax returns. Prereq: 202.

Acctg **484 Federal and State Taxes** (3 cr). Income-tax law in relation to partnerships, corporations, and trusts and estates; tax-law research; estate, gift, and inheritance tax law; estate planning. Prereq: 202.

Acctg **486 Costs: Analysis and Controls** (3 cr). Cost analysis and control methods as a basis for planning, cost control, and decisions. Prereq: 385 and Bus 231.

Acctg **R490 Advanced Accounting Problems** (3 cr). Problems in professional examinations given by the American Institute of Certified Public Accountants; problem analysis and development of working papers. Prereq: perm.

Acctg **491 Accounting Theory** (3 cr). History; major areas of controversy in principles and theories. Prereq: 401.

Acctg **493 Auditing Theory** (3 cr). Nature, importance, and basis of the audit theory; standards and procedures. Prereq: 302.

Acctg **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

Acctg **499** (s) **Directed Study** (cr arr). Prereq: perm.

Acctg **501** (s) **Seminar** (cr arr). Prereq: perm.

Acctg **502** (s) **Directed Study** (cr arr). Prereq: perm.

Acctg **504** (s) **Special Topics** (cr arr).

Acctg **586 Costs: Relevance, Measurements, and Applications** (3 cr). Development of cost control. Prereq: perm.

Afro-American Studies

Siegfried B. Rolland, Coordinator (311-B Admin. Bldg.).

AfrAm **103 Introduction to Black Culture** (2 cr). See SocSc 103.

AfrAm **200; 400** (s) **Seminar** (cr arr). Prereq: perm.

AfrAm **203; 403** (s) **Workshop** (cr arr). Prereq: perm.

AfrAm **204; 404** (s) **Special Topics** (cr arr).

AfrAm **299; 499** (s) **Directed Study** (cr arr). Prereq: perm.

AfrAm **322 Racial and Ethnic Relations** (3 cr). See Anthr 322.

AfrAm **327 Black Literature** (3 cr). See Eng 327.

AfrAm **385 African Political Systems** (3 cr). See PolSc 385.

AfrAm **427 Peoples of Africa** (3 cr). See Anthr 427.

AfrAm **432 The Negro in American History** (3 cr). See Hist 432.

Agricultural Economics

Richard W. Schermerhorn, Dept. Head (39A Iddings Wing, Ag. Sci. Bldg.). Faculty: Ahmed A. (Jim) Araji, John E. Carlson, John O. Early, Dale O. Everson, E. Bruce Godfrey, Joel R. Hamilton, James R. Jones, Virgil D. Kennedy, Karl H. Lindeborg, Roger B. Long, Gerald E. Marousek, Don A Marshall, Edgar L. Michalson, G. Ray Prigge, Arthur C. Rathburn, Robert L. Sargent, Richard W. Schermerhorn, Russell V. Withers, "J" Clair Wixom.

AgEc **101 Agriculture and Its Social and Economic Environment** (3 cr). History of agriculture and man; agricultural industry and its relation to the social and economic problems of the U.S. and the world; factors affecting production and marketing of agricultural products. Also offered by correspondence study.

AgEc **204** (s) **Special Topics** (cr arr).

AgEc **208 Principles of Farm and Ranch Management** (3 cr). Decision-making for the farm operator who seeks maximum profits; application of economic principles and farm records to such decisions; methods of comparing alternative farming combinations and practices. Also offered by correspondence study.

AgEc **219 Marketing Farm Products** (3 cr). Marketing functions, agencies and services, demand, supply, cost and price theories. Also offered by correspondence study.

AgEc **332 Economics of Agricultural Development** (3 cr). Problems associated with the economics of major agricultural areas of the world; development of agriculture and economic growth.

AgEc **353 Agricultural Prices** (3 cr). Factors affecting farm commodity prices; production cycles; price variability and analysis. Prereq: Econ 252.

AgEc **356 Agricultural Programs and Policies** (3 cr). Goals, methods, results of ecnonomic programs and policies in agriculture, including role of government and farm organizations. One 1-day field trip. Prereq: 6 cr in economics, agricultural economics, or perm.

AgEc **361 Farm and Natural Resource Appraisal** (3 cr). Same as FWR 361. Methods; factors affecting the value of land and related

resources; valuations for loans, sale, assessment, condemnation, and other purposes; procedures used by government and commercial agencies. Two 1-day field trips.

AgEc **391 Agricultural Business Management** (3 cr). Economic theory of businesses; application to management of agricultural processing and service firms; accounting, statistics, and efficiency studies for problem-solving. Prereq: 6 cr in economics or agricultural economics.

AgEc **404** (s) **Special Topics** (cr arr).

AgEc **414 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: Math 140.

AgEc **451 Land Resource Economics** (3 cr). Land utilization, characteristics, and classification; agricultural, forest, and mineral lands; factors affecting land use; ownership and tenure, taxation, values, credit, and government policies. Also offered by correspondence study.

AgEc **477 Economics of Developing Countries** (3 cr). See Econ 477.

AgEc **481 Agricultural Market Analysis** (3 cr). Markets and market structures; types of competition and market power with implications for producers of farm products. Prereq: Econ 321, 372, or perm.

AgEc **483 Economics of Conservation** (3 cr). See FWR 483.

AgEc **493 Agricultural Production Economics** (3 cr). Economic theory related to agricultural production at the enterprise, firm, and industry levels.

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 **507 Research Methodology** (3 cr). Same as Econ 507. Theoretical background of the scientific method applied to economic research; organization, procedures, reporting, and evaluation of research. Prereq: perm.

AgEc **508 Problems in Production Economics Research** (3 cr). Objectives and techniques; application of probability models and their evaluation employing a number of econometric techniques. Prereq: 493 or perm.

AgEc **521 Advanced Microeconomic Theory** (3 cr). See Econ 521.

AgEc **522 Advanced Aggregate Economics** (3 cr). See Econ 522.

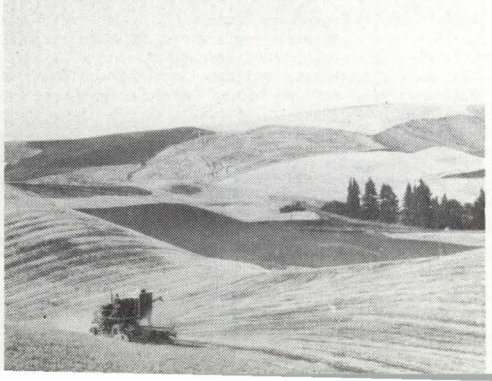
AgEc **523 Advanced Monetary Theory** (3 cr). See Econ 523.

AgEc **524 Theory of Economic Development** (3 cr). Same as Econ 524. Macrodynamic theory as it relates to economic growth; conditions for and process of economic development and its significance to new areas and underdeveloped regions.

AgEc **525 Econometrics** (3 cr). Same as Econ 525. Mathematical formulation of theoretical economic models which serve as the basis for empirical investigations of economic behavior. Prereq: perm.

AgEc **551 Economics of Natural Resource Development** (3 cr). Allocation of natural resources over time and among uses; welfare economics and benefit cost analysis; valuation of extramarket goods; problems of social organization. Prereq: perm.

AgEc **599** (s) **Research** (cr arr). Prereq: perm.



Agricultural Education

Dwight L. Kindschy, Dept. Head (111 Ag. Sci. Bldg.). Faculty: Robert C. Haynes, Dwight L. Kindschy, John A. Lawrence, William H. Shane.

AgEd **200** (s) **Seminar** (cr arr). Prereq: perm.

AgEd **203** (s) **Workshop** (cr arr). Prereq: perm.

AgEd **204** (s) **Special Topics** (cr arr).

AgEd **299** (s) **Directed Study** (cr arr). Prereq: perm.

AgEd **348 Extension Methods** (2 cr). Methods used in the field by county agents, college faculty members, extension specialists, and teachers of vocational agriculture. Also offered by correspondence study.

AgEd **351 Principles of Vocational Education** (2 cr). Same as VocEd 351. History, meaning, aims, administration, and place in the schools. Also offered by correspondence study.

AgEd **352 Beginning Methods** (2 cr). Problems, methods, and materials.

AgEd **400** (s) **Seminar** (cr arr). Prereq: perm.

AgEd **403** (s) **Workshop** (cr arr). Prereq: perm.

AgEd **404** (s) **Special Topics** (cr arr).

AgEd **453 Advanced Methods and Curricula** (3 cr). Continuation of 352. Prereq: sr standing.

AgEd **454 Methods of Teaching Farm Shop** (2 cr). Application of efficient organization and management practice in teaching farm mechanics.

AgEd **457 Adult Agricultural Education Methods** (2 cr). Methods in organizing and conducting young farmer and adult farmer classes.

AgEd **458 Supervision of the FFA** (2 cr). Includes community work and other problems not covered in 453.

AgEd **460 Practice Teaching** (1-9 cr, max 9). Students may complete four weeks of practice teaching prior to registration in the fall and be allowed to register for this course as a part of their academic program for the semester without penalty. Prereq: 352 and perm of dept.

AgEd **470 Proseminar** (1 cr, max 2).

AgEd **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

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).

AgEd **557 Problems in Teaching Vocational Agriculture** (1-3 cr, max 9). Methods and new developments; may include attendance at summer conference. Consult the summer bulletin for special emphasis. Prereq: perm.

AgEd **561 Adult Programs in Agriculture** (1-6 cr, max 6). Philosophy, development, and status of adult education; current subject matter and organization in relation to progressive adult programs in Idaho and the Northwest.

AgEd **562 Advanced Methods in Farm Mechanics** (1-6 cr, max 6). Objectives, teaching methods, and current trends in farm mechanics programs in high schools and adult classes.

AgEd **583 Program Planning in Vocational Agriculture** (1-6 cr, max 6). Emphasis on preparation of off-farm agricultural occupations.

AgEd **597** (s) **Practicum** (cr arr). Prereq: perm.

AgEd **598** (s) **Internship** (cr arr). Prereq: perm.

AgEd **599** (s) **Research** (cr arr). Prereq: perm.

Agricultural Engineering

Delbert W. Fitzsimmons, Dept. Chairman (326 Buchanan Engr. Lab.). Faculty: George L. Bloomsburg, John R. Busch, John E. Dixon, Wayne F. Fisher, Delbert W. Fitzsimmons, Robert C. Haynes, Lynn F. Johnson, Dorrell C. Larsen, Galen M. McMaster, Walter L. Moden, Myron P. Molnau, Charles L. Peterson, Roy E. Taylor, Larry G. Williams.

AgE **241 Introduction to Agricultural Engineering** (1 cr). Survey of the field; applications of engineering principles to agricultural problems. One 2-hr lab per wk.

AgE **299** (s) **Directed Study** (cr arr). Prereq: perm.

AgE **342 Agricultural Engineering Analysis** (3 cr). Methods of analyzing and solving engineering problems; original approaches; dimensional analysis, similitude, approximation, and numerical methods; use of analog and digital computers in solving selected problems. Two lec and one 2-hr lab per wk. Prereq: Engr 131, Math 190.

AgE **351 Hydrology** (2 cr). Same as CE 321. Analysis of precipitation and runoff events; principles of evaporation, infiltration, and snowmelt.

AgE **352 Fundamentals of Irrigation and Drainage** (3-4 cr). Irrigation consumptive use, methods, distribution, pumping, structures; surface and subsurface drainage; water rights and water resource developments. Three lec, or three lec and one 3-hr lab per wk.

AgE **372 Agricultural Machines** (3 cr). Operation and functional requirements; force analysis; power transmission; man-machine relations; efficiency, safety, and economic considerations. Two lec and one 3-hr lab per wk. Prereq: ES 340.

AgE **449 Elements of Structural Engineering** (4 cr). Design of steel and timber members and connections, reinforced concrete beams, slabs, columns, and footings. Prereq: ES 340.

AgE **451 Engineering Hydrology** (3 cr). Hydrologic cycle as applied to engineering projects; hydrologic and hydraulic hydrograph routing; groundwater and surface water interactions; design hydrographs; intro to hydrologic simulation. Prereq: 351.

AgE **454 Drainage System Design** (2 cr). Theory and design of subsurface drainage systems; intro to unsaturated flow. Prereq: ES 320.

AgE **458 Open Channel Hydraulics** (3 cr). Same as CE 421. Hydraulics of uniform and varied flow in open channels with fixed and movable beds.

AgE **461 Environmental Systems** (3 cr). Analysis and synthesis of environmental control systems for animal production, crop storage, and plant growth; farmstead planning; waste management. Coreq: ES 321.

AgE **462 Electric Power and Processing** (3 cr). Selection of electric motors and controls; wiring; drying, cooling, and conditioning of agricultural materials; materials handling and storage systems. Two lec and one 3-hr lab per wk.

AgE **471 Energy Conversion in Agricultural Systems** (2-3 cr). Principles and applications in agricultural systems; performance characteristics of energy sources, their limitations, instrumentation requirements, and economic considerations; the internal combustion engine and power transmission. Two lec, or two lec and one 3-hr lab per wk. Prereq: ES 321.

AgE **474 Fluid Power and Control Systems** (2 cr). Engineering design, analysis, and testing of basic fluid power and control systems; fluid power sources, fluid motors, basic circuit components and their symbols, and circuit design; agricultural machinery applications. One lec and one 3-hr lab per wk.

AgE **491-492 Seminar** (0 cr). Professional aspects of the field. Graded on the basis of P or F. Prereq: sr standing.

AgE **499** (s) **Directed Study** (cr arr). Prereq: perm.

AgE **500 Master's Research and Thesis** (cr arr).

AgE **501** (s) **Seminar** (cr arr). Prereq: perm.

AgE **502** (s) **Directed Study** (cr arr). Prereq: perm.

AgE **541 Measurement and Control Techniques** (3 cr). Methods and instruments used in research; electronic instrumentation; design of control systems and electronic measurement of physical quantities encountered in agricultural research.

AgE **551 Advanced Hydrology** (3 cr). Principles of modeling and simulating hydrologic systems with emphasis on mountainous regions, energy flows, precipitation distribution, evaporation, and snowmelt.

AgE **WS552 Advanced Theory of Irrigation Water Requirements** (3 cr). Alt/yrs 76-77. WSU 590. Energy balance and consumptive use of water; influence of farm and project irrigation system design criteria, management, and efficiencies.

AgE **ID555 Natural Channel Flow** (2-3 cr). Hydraulics of nonuniform flow in irregular channels, unsteady flow, flow routing, and density currents.

AgE **ID558 Fluid Mechanics of Porous Materials** (3 cr). Statics and dynamics of multiflow systems in porous materials; properties of porous materials, steady and unsteady flow.

AgE **562 Environmental Systems Design** (3 cr). Analysis and design of structures and environmental systems for livestock production, crop processing, and storage.

AgE **589 Water Resources Seminar** (1 cr). See Inter 589.

AgE **600 Doctoral Research and Dissertation** (cr arr).

Agricultural Mechanization

Delbert W. Fitzsimmons, Chairman, Dept. of Agricultural Engineering (326 Buchanan Engr. Lab.). Faculty: John R. Busch, John E. Dixon, Delbert W. Fitzsimmons, Robert C. Haynes.

AgMech **101 Oxy-Actylene Welding** (2 cr). Principles of operation, use, and care of oxy-actylene welding and cutting equipment. One lec and one 2-hr lab per wk. Prereq: perm.

AgMech **107 Arc Welding** (2 cr). Principles of operation, use, and care of arc welding equipment. One lec and one 2-hr lab per wk. Prereq: perm.

AgMech **112 Engineering Applications in Agriculture** (3 cr). Engineering principles and their applications in agriculture, farm machinery and tractors, buildings, materials handling, processing irrigation, and drainage.

AgMech **115 Graphical Representations** (1 cr). Lettering, drafting procedures, orthographic projection, pictorial drawings, sketching, mechanical and agricultural drawings, drawing reproduction methods. One 3-hr lab per wk.

AgMech **200** (s) **Seminar** (cr arr). Prereq: perm.

AgMech **302-303 Agricultural Education Shop I-II** (4 cr). Primarily for agricultural education students. AgMech 302: care and use of farm shop tools and equipment. AgMech 303: selection and operation of farm power units and machinery; service and repair of engines, electric motors, and machinery. Two lec and two 3-hr labs per wk. Prereq: perm.

AgMech **305 Agricultural Machinery and Equipment** (2-3 cr). Application, operation characteristics, adjustments, servicing, and care of farm equipment; materials of construction, heat treatment, power transmission, and hydraulic systems. Two lec, or two lec and one 2-hr lab per wk.

AgMech **306 Agricultural Structures and Environmental Systems** (2-3 cr). Requirements and planning of farm buildings; materials of construction, loads on buildings, design of beams and columns, analysis of insulation and ventilation for environmental control. Two lec, or two lec and one 3-hr lab per wk.

AgMech **309 Gas Engines and Tractors** (2-3 cr). Construction and operation of internal combustion engines; application to small farm-type engines and tractors, carburetion, valve timing, ignition, cooling, lubrication, and fuels; servicing and repair of stationary engines and farm tractors. Two lec, or two lec and one 2-hr lab per wk.

AgMech **312 Electric Power Application** (3 cr). Heat, light and power; circuits and wiring; selection of motors and controls; use of electricity for lighting, refrigeration, and ventilation. Two lec and one 2-hr lab per wk.

AgMech **315 Irrigation and Drainage** (2-3 cr). Irrigation, water resources, current irrigation developments, water rights, conveyance and measurement, pumps and pumping, soil-water-plant relationships, irrigation methods, surface and subsurface drainage. Two lec, or two lec and one 3-hr lab per wk.

AgMech **400** (s) **Seminar** (cr arr). Prereq: perm.

AgMech **499** (s) **Directed Study** (cr arr). Prereq: perm.

Agriculture (General)

Don A Marshall, Coordinator (47 Iddings Wing, Ag. Sci. Bldg.). Faculty: Dale O. Everson, Don A Marshall.

PREREQUISITE: Enrollment in courses in this subject field, except 203, 321, 406, and 507, requires the permission of the coordinator.

Ag **200; 400; 501** (s) **Seminar** (cr arr).

Ag **203 Environmental Pollution** (3 cr). Same as Inter 203. How man pollutes his environment and what can be done about it; invited experts survey the complete spectrum of environmental disturbance.

Ag **204; 404** (s) **Special Topics** (cr arr).

Ag **205; 403; 503** (s) **Workshop** (cr arr).

Ag **299; 499; 502** (s) **Directed Study** (cr arr).

Ag **321 Biometry** (3 cr). Same as FWR 307 and InfSc 321. Statistical analysis of biological data, probability distributions, regression, correlation, enumeration data, linear models, analysis of variance, elementary design, and interpretation of results. Two lec and one 2-hr lab per wk. Prereq: Math 111 or 140 or perm.

Ag **406 Statistical Research Methods** (3 cr). Same as InfSc 406. Biometrical principles to analyze and interpret research problems; analysis of variance, correlation, multiple regression, covariance, principles of experimental design. Prereq: 321 or perm.

Ag **507 Experimental Design** (3 cr). Same as InfSc 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: 406 or equiv.

Ag **510 Professional Problems** (1-4 cr, max 4). Primarily for students in the nonthesis M.S. program. Professional paper required.

Ag **597** (s) **Practicum** (cr arr).

Ag **598** (s) **Internship** (cr arr).

Ag **599** (s) **Research** (cr arr).

Animal Industries

Jack E. McCroskey, Dept. Head (215 Ag. Sci. Bldg.). Faculty: Richard C. Bull, Ross E. Christian, Jerome J. Dahmen, Steven L. Davis, Melvin L. DeWitt, Dennis G. Falk, Kenneth R. Fredericksen, Terry L. Gregory, Morris L. Hemstrom, Dan D. Hinman, A. Dean Howes, John A. Jacobs, Jack E. McCroskey, Auttis M. Mullins, Charlie F. Petersen, Richard H. Ross, R. Garth Sasser, Erwin A. Sauter, Jr., Edward E. Steele, Judith A. Templeton, Davis L. Thacker, Dennis E. Woodruff.

Anl **109 Principles of Animal Science** (3 cr). Scope and potential of the livestock industry; types and breeds of livestock and poultry; inheritance, physiology, nutrition, management and classification, and grading of their products. Coreq for animal industries majors: 110.

Anl **110 Principles of Animal Science Laboratory** (1 cr). Laboratory exercises and practice in animal agriculture. One 2-hr lab per wk. Coreq: 109.

Anl **152 Livestock Management Practices** (2 cr). Management practices in the production, exhibition, and marketing of livestock and poultry. Two 2-hr labs per wk. Graded on the basis of P or F.

Anl **205 Animal and Avian Nutrition** (3 cr). May not be used for major cr by animal industries agricultural science majors. Nutrients, their metabolism, requirements, and application in ration formulation for animals and birds.

Anl **WS212 Dairy Cattle Traits** (2 cr). WSU AS 212. Evaluating form and function in dairy cattle; measurement of production and evaluation of type. One lec and one 3-hr lab per wk.

Anl **222 Livestock Breeding and Reproduction** (3 cr). May not be used for major cr by animal industries agricultural science majors. Application of principles of genetics and reproductive physiology in livestock improvement, fertility, systems of mating, and selection techniques.

Anl **224 Horse Production** (3 cr). Physiology, anatomy, and function of the horse as related to nutrition, breeding, and conformation; practical horse management and training. Enrollment limited to 36 students. Two lec and one 2-hr lab per wk; one ½-day field trip.

Anl **263 Introduction to Meat Science** (3 cr). Basic meats course; inspection, slaughter, processing, and factors which affect the quality and palatability of meat. Two lec and 3-hr lab per wk; one 1-day field trip.

Anl **299** (s) **Directed Study** (cr arr). Graded on the basis of P or F. Prereq: perm.

Anl **303 Live Animal Selection and Carcass Evaluation** (3 cr). Evaluation and selection of breeding and market animals; genetic, nutritional, and physiological factors influencing growth, development, and quality of meat animals; visual and objective appraisal. One lec and two 3-hr labs per wk; three 1-day and four ½-day field trips or equiv time.

Anl **304 Advanced Live Animal Selection and Carcass Evaluation** (3 cr). Live animal and carcass evaluation of beef, sheep, and swine. Students participate in live animal-meat evaluation contests. One lec and two 3-hr labs per wk; four 1-day and four ½-day field trips in addition to contests or equiv time.

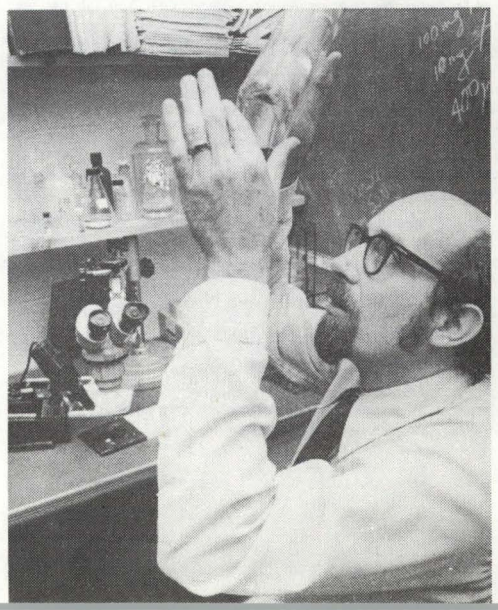
Anl **305 Principles of Nutrition** (3 cr). Proteins, carbohydrates, fats, minerals and vitamins; physiology of digestion, absorption and metabolism of nutrients, and the relationship of enzymes and hormones in these phenomena. Prereq: Biochem 205 or organic chemistry.

Anl **306 Applied Animal Nutrition** (4 cr). Applying the principles of nutrition to feeding domestic animals and poultry, evaluating feedstuffs, and ration formulation. Three lec and one 2-hr lab per wk. Prereq: 305 or equiv.

Anl **321 Beef Cattle Science** (3 cr). Breeding, feeding, management, and marketing of commercial and purebred cattle.

Anl **ID322 Sheep Science** (3 cr). Alt/yrs 76-77. Breeding, feeding, management, and marketing of commercial and purebred sheep; wool studies. Two lec and one 2-hr lab per wk.

Anl **323 Dairy Cattle Management** (3 cr). Operation of modern large dairy farms. Two lec and one 2-hr lab per wk.



Anl **326 Swine Science** (3 cr). Breeding, feeding, and management of swine, application of the sciences of nutrition, physiology, and genetics to the development of efficient swine enterprises.

Anl **328 Commercial Poultry and Egg Production** (3 cr). Alt/yrs 76-77. Modern housing, equipment, labor-saving and efficiency factors in flock management, production costs and returns. Two lec and one 2-hr lab per wk; one 1-day field trip.

Anl **334 Meat Technology** (3 cr). Fabricating and pricing of wholesale and retail cuts of meat; technology of fresh and processed meat; sausage making; quality control. Two lec and one 3-hr lab per wk. Prereq: 263.

Anl **403** (s) **Workshop** (cr arr). Normally offered in nutrition, breeding, products, and management. Graded on the basis of P or F. Prereq: perm.

Anl **410 Production and Processing Practices** (1 cr, max 2). Livestock, dairy, and poultry production; processing practices and facilities. One 7-day field trip or equiv time. Graded on the basis of P or F.

Anl **WS413 Physiology of Lactation** (3 cr). Alt/yrs 77-78, WSU AS 413. The endocrine system and the physiology of milk secretion, including bovine mammary anatomy, development, endocrine control, and synthesis of milk. Prereq.: VS 371.

Anl **WS415 Animal Nutrition Laboratory** (1 cr). WSU AS 415. Quality control, proximate analysis, and other lab methods related to nutritional experiments with animals. Three hrs of lab per wk. Prereq: 305.

Anl **421 Population Genetics** (3 cr). Same as Genet 421. Gene frequency analysis; effects of natural and artificial selection on the genetic composition of populations; inheritance of quantitative characters; concepts of heritability; effects of inbreeding and outbreeding on populations. Prereq: Genet 314 or equiv.

Anl **422 Animal Breeding** (3 cr). Same as Genet 422. Application of genetic principles to the improvement of farm animals; effects of inbreeding, outbreeding, assortative, and disassortative mating on animal popualations; selection for economically important traits; heritability; genetic correlations; use of selection indexes. Prereq: Genet 314 or equiv.

Anl **450 Proseminar** (1 cr, max 2). Special topics in animal industries.

Anl **451 Endocrine Physiology** (3 cr). Same as Zool 417. 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. Prereq: Biol 202 and organic chemistry or biochemistry or perm.

Anl **452 Physiology of Reproduction and Lactation** (3 cr). Physiology of reproduction of animals; structure, growth, development, and physiology of the mammary gland. Prereq: Biol 202 and organic chemistry or biochemistry or perm.

Anl **453 Physiology of Reproduction and Lactation Laboratory** (1 cr). Lab in reproduction and the structure, growth, development, and physiology of the mammary gland. One 3-hr lab per wk. Prereq: 452 or Zool 411 (may be concurrent).

Anl **ID454 Physiology of Artificial Insemination and Early Pregnancy** (2 cr). Procedures of semen collection, processing, and insemination; physiology and endocrinology of pregnancy detection in domestic and laboratory animals. One lec and one 3-hr lab per wk. Graded on the basis of P or F. Prereq: 452 and 453 or Zool 411 (may be concurrent) and perm.

Anl **499** (s) **Directed Study** (cr arr). Graded on the basis of P or F. Prereq: perm.

Anl **500 Master's Research and Thesis** (cr arr). Graded on the basis of P or F.

Anl **501** (s) **Seminar** (cr arr). Prereq: perm.

Anl **502** (s) **Directed Study** (cr arr). Prereq: perm.

Anl **503** (s) **Workshop** (cr arr). Prereq: perm.

Anl **504** (s) **Special Topics** (cr arr).

Anl **511 Animal Nutrition** (3 cr). Biochemical and physiological aspects of nutrition of higher animals and man; function and metabolism of nutrients. Prereq: perm.

Anl **WS512 Energy Metabolism** (3 cr). Alt/yrs 76-77, WSU AS 561. Biochemical, physiological, and nutritional aspects of energy metabolism. Prereq: 305, 306, Chem 480.

Anl **ID513 Microbiology and Physiology of Ruminant Nutrition** (3 cr). Physiology and microbial aspects of ruminant digestion and their influence on the metabolism of extraruminal tissues; interpretation of nutritive requirements in terms of rumen microbial activities; evaluation of research techniques. Prereq: perm.

Anl **514 Physiology of Nonruminant Nutrition** (3 cr). Physiology of digestion, absorption, and metabolism of nutrients in monogastric animals and birds; development of nutritive requirements and nutritive interrelationships. Prereq: perm.

Anl **ID&WS520 Seminar in Animal Physiology** (1 cr, max arr). WSU AS 520. Current developments in animal physiology.

Anl **522 Statistical Genetics** (3 cr). Same as Genet 522. Statistical techniques used in population genetics research; methods of estimating heritability, genetic correlations, and phenotypic correlation; construction of selection indexes; mating systems; genetic homeostatis. Prereq: perm.

Anl **WS526 Advanced Reproduction** (4 cr). Alt/yrs 76-77. WSU AS 526. Physiology of sexual maturation; gametogenesis; sexual cycle; fertilization; embryonic development; physiological, chemical, and immunological characterization of hormones of reproduction. Three lec and three hrs of lab per wk. Prereq: 452 or equiv.

Anl **551 Advanced Endocrine Physiology** (3 cr). Biochemical and physiological properties of hormones; lab techniques in experimental endocrinology. Two lec and one 2-hr lab per wk. Prereq: 451, Chem 482.

Anl **ID573 Meat Science** (3 cr). Biochemical, histological, microbiological, and physiological properties of meat; their application to meat research. One lec and two 3-hr labs per wk.

Anl **WS596 Advanced Topics in Animal Sciences** (1-2 cr, max arr). WSU AS 598. Recent research in various disciplines of animal sciences.

Anl **597** (s) **Practicum** (cr arr). Prereq: perm.

Anl **598** (s) **Internship** (cr arr). Prereq: perm.

Anthropology

Roderick Sprague, Head, Dept. of Sociology/Anthropology (101 Faculty Office Complex-West). Faculty: G. Ellis Burcaw, Ruthann Knudson, Richard H. Lane, David G. Rice, Roderick Sprague.

PREREQUISITE: Ordinarily three credits in lower-division courses in anthropology are required for registration in upper-division courses in this field; exceptions by permission.

Anthr **109 Archaeology for the Amateur** (3 cr). Intro to archaeological field methods, elementary analysis, and interpretation of local finds. Six 1-day field trips.

Anthr **110 Introduction to Physical Anthropology and Archaeology** (3 cr). Theories, methods, and findings as they relate to human paleontology, prehistory, and racial types.

Anthr **120 Introduction to Social Anthropology** (3 cr). Theories, methods, and findings as they relate to human culture, social organization, and language.

Anthr **200** (s) **Seminar** (cr arr). Prereq: perm.

Anthr **203** (s) **Workshop** (cr arr). Prereq: perm.

Anthr **204** (s) **Special Topics** (cr arr).

Anthr **223 Western Ranching Culture** (3 cr). Cultural ecology of livestock ranching; sheepmen, cattlemen, settlers. Prereq: 120.

Anthr **224 The Basque People** (3 cr). Ethnohistory of the Basque Country, Latin America and the Western United States. Prereq: 120.

Anthr **225 Aboriginal North American Indian** (3 cr). Origins, physical types, languages, and cultures of native populations of America. Also offered by correspondence study.

Anthr **299** (s) **Directed Study** (cr arr). Prereq: perm.

Anthr **301 Study of Man** (3 cr). Not open for credit to majors in the Department of Sociology/Anthropology or to students who have taken 110 or 120 or equiv. Nontechnical intro to anthropology; basic concepts of human evolution, prehistory, archaeology, world cultures, social structure, and linguistics. Three 1-day field trips.

Anthr **320 Peoples of the World** (3 cr). Societies of Eurasia, Africa, Americas, Australia, and islands of the Pacific. Prereq: 120.

Anthr **321 Culture and Personality** (3 cr). Theories, methods, and findings of the interrelationships between the individual and his or her culture.

Anthr **322 Racial and Ethnic Relations** (3 cr). Same as Soc 322 and AfrAm 322. Racial, ethnic, and minority groups; their special problems in the U.S. Also offered by correspondence study.

Anthr **325 Indians of Idaho** (3 cr). Aboriginal American Indian societies of northwestern North America; emphasis on Idaho. Three 1-day field trips.

Anthr **330 World Prehistory** (3 cr). Prehistoric cultures of Old and New Worlds; techniques of excavation; methods of archaeological analysis.

Anthr **400** (s) **Seminar** (cr arr). Prereq: perm.

Anthr **402 History of Anthropological Theory** (3 cr). Schools of anthropological methods and theory in a developmental sequence. Prereq: 120, 320, 420.

Anthr **403** (s) **Workshop** (cr arr). Prereq: perm.

Anthr **404** (s) **Special Topics** (cr arr).

Anthr **409 Anthropological Field Methods** (1-8 cr, max 8). Supervised field training in archaeology and/or social anthropology.

Anthr **420 Ethnological Issues** (3 cr). Contemporary theoretical debates in cultural ecology, ethnography, kinship, and political and economic anthropology. Prereq: 120, 320.

Anthr **421 Belief Systems of Simpler Societies** (3 cr). Theories, methods, and findings of comparative anthropological study; emphasis on religion.

Anthr **ID424 Seminar in Basque Studies** (3 cr). Reading and/or speaking knowledge of Basque, French, or Spanish recommended but not required. Prereq: 224.

Anthr **ID425 Contemporary North American Indian** (3 cr). Acculturation and current state of American Indian societies; emphasis on U.S. and Canada. Three 1-day field trips. Also offered by correspondence study.

Anthr **427 Peoples of Africa** (3 cr). Same as AfrAm 427. Native societies; contemporary problems arising from European penetration; emergence of native states.

Anthr **435 North American Prehistory** (3 cr). Theories, methods, and findings of prehistoric North American archaeology.

Anthr **WS480 Descriptive Linguistics** (3 cr). WSU 454. Phonological, grammatical, and semantic structures of natural language.

Anthr **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm of dept.

Anthr **499** (s) **Directed Study** (cr arr). Prereq: perm.

Anthr **500 Master's Research and Thesis** (cr arr).

Anthr **501** (s) **Seminar** (cr arr). Subjects normally offered are: methods of anthropological research, anthropological theory, and human ecology. Prereq: perm.

Anthr **502** (s) **Directed Study** (cr arr). Subjects normally offered are: anthropological theory, applied anthropology, and ethnohistory. Prereq: perm.

Anthr **503** (s) **Workshop** (cr arr). Prereq: perm.

Anthr **504** (s) **Special Topics** (cr arr).

Anthr **509 Anthropological Field Methods** (1-8 cr, max 8). Individual field work in approved areas. Prereq: perm.

Anthr **ID521 Seminar in Acculturation** (2-4 cr, max 4). Prereq: perm.

Anthr **ID531 Historical Archaeology** (3 cr). Excavation and analysis of historical archaeological sites, including acculturational implications. Three 1-day field trips. Prereq: perm.

Anthr **WS571 Interpretation of Quaternary Terrestrial Sediments** (4 cr). WSU 570. Pleistocene paleoclimatic changes as inferred from sediments, landforms, and fossil soils of archaeological importance. Three lec and one 3-hr lab per wk. Prereq: perm.

Anthr **WS572 Physical Stratigraphy of Archaeological Sites** (4 cr). WSU 571. Recognition, description, sampling, and analysis of sediments typically found with human cultural materials. Three lec and one 3-hr lab per wk. Prereq: perm.

Anthr **ID573 Paleoecology** (3 cr). See Geol ID515.

Anthr **WS576 Palynology** (4 cr). Intro to pollen morphology and pollen analysis through studies of pollen ontogeny, morphology, preservation, size variation, and dispersion. Three lec and one 3-hr lab per wk.

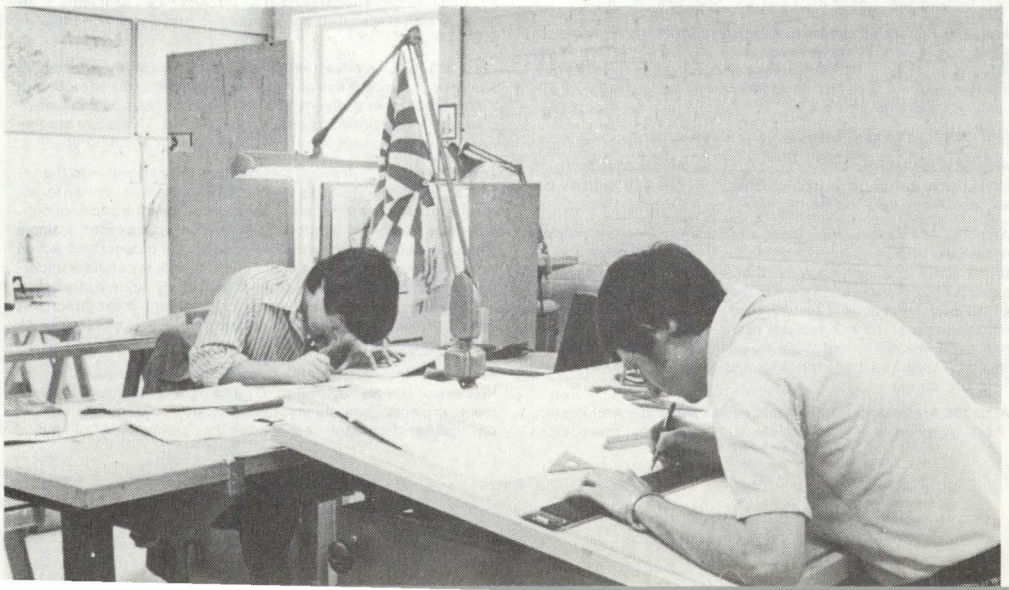
Anthr **WS577 Pollen Analysis** (4 cr). Techniques of pollen analysis and application to quaternary studies; opportunity to work with sediments of past vegetational sequences. Three lec and one 3-hr lab per wk. Prereq: WS576.

Anthr **WS580 Linguistic Field Methods** (3 cr). WSU 554. Elicitation, analysis, and description of a natural language, utilizing a native speaker as informant. Prereq: perm.

Anthr **597** (s) **Practicum** (cr arr). Prereq: perm.

Anthr **598** (s) **Internship** (cr arr). Prereq: perm.

Anthr **599** (s) **Research** (cr arr). Prereq: perm.



Architecture

Paul L. Blanton, Head, Dept. of Art and Architecture (102 Art and Arch. North). Faculty: Jerry A. Bancroft, Robert M. Baron, Ronald D. Bevans, Paul L. Blanton, Anton A. Eder, Larry G. Fisher, Terry C. Hargrave, James J. Kuska (Landscape Architecture), William B. McCroskey, Albert Jon Peterson, William P. Sloan, William H. Snyder (Landscape Architecture), Charles M. Tinder, R. Ronald Wells.

Arch **155-156 Design and the Creative Process** (2 cr). Intro to design; lectures, readings, and experiences to familiarize the student with the history and development of the design tradition and its application in the visual, environmental, and communicative arts; emphasis on critical evaluation and understanding of the design process and its relationship to human society.

Arch **200** (s) **Seminar** (cr arr). Prereq: perm.

Arch **203** (s) **Workshop** (cr arr). Prereq: perm.

Arch **204** (s) **Special Topics** (cr arr).

Arch **253 Basic Design Review** (2 cr). Intro to the design process; studio problems to familiarize the student with the basic design process and to explore design through projects, lectures, and readings. Two 2-hr studios per wk and assigned work.

Arch **255 Graphic Communication** (2 cr). Intro to the process of graphic communication; studio projects to explore graphics through experiences, lectures, and readings. Two 2-hr studios per wk and assigned work.

Arch **256 Basic Architectural Design** (2 cr). Intro to form, space, and systems concepts in architecture. Two 2-hr studios per wk and assigned work.

Arch **259-260 Landscape Architecture I** (3-6 cr). Nonmajors may enroll for a maximum of three credits each semester. Arch 259: Visual analysis and portrayal of landscape character; incorporates study of the three planes of space and how man relates to them; studio projects are small in scale (courtyards, plazas, malls) so that the student has time to do several during the semester; an approach to problem solving (site analysis, ideal schematics, relationship analysis) is also stressed. Arch 260: Planting design, emphasis on use of plant materials in giving form to space; incorporates climatic and ecological determinants in design. Three lec and three 2-hr studios per wk. Prereq: 259 for 260.

Arch **266 Materials and Methods** (3 cr). Materials characteristics from manufacture to construction; production information and resource literature investigation.

Arch **269-270 Landscape Construction I-II** (3 cr). Drainage and grading; soils and terrain in relation to earthwork as design determinants; irrigation layout; design of landscape structures. Three 3-hr studios per wk; one 1-day field trip each semester.

Arch **288 Plant Materials** (3 cr). Selection and use of plant materials in relation to soils, topography, climate, and design. Two lec and two 2-hr studios per wk; selected field trips.

Arch **289 History of Landscape Architecture** (2 cr). Overview of landscape history from the Egyptian civilization of the Nile Valley (3100 to 1000 B.C.), Ancient Greece and Rome, the Middle Ages, the Renaissance, Oriental civilization up to and including 20th-century styles and trends.

Arch **299** (s) **Directed Study** (cr arr). Prereq: perm.

Arch **351-352 Interior Design I** (3 cr). Situation response program formulation synthesis in interior design. Three 3-hr studios per wk; one 7-day field trip during yr.

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; specifically, influences of history, research, and materials of construction related to architectural design; encouragement of student experimentation and creativity within the field of architectural design. Three 3-hr studios per wk and assigned work; one 7-day field trip during yr.

Arch **358 Professional Office Practice in Landscape Architecture** (2 cr). Overview of office organization, types of fees, essentials of a contract, bonding, bidding specifications, insurances, and the landscape architect-subcontractor relationships.

Arch **359-360 Landscape Architecture II** (6 cr). Arch 359: Development of a spatial notation system and visual analysis of the landscape; uses of plant materials; grading problems; terminal project combines these elements in an actual site study. Arch 360: Exploration of the design potential of natural and manmade materials; exploration of landscape survey and analysis techniques, assessment of the elements of environment as they condition design potential, exploration of methodologies of solving design problems and ways to express landscape form both graphically and with models. Three lec and three 2-hr studios per wk; one 7-day field trip during yr. Prereq: 260; 359 for 360.

Arch **361 Interiors and Materials** (3 cr). Use and application of building materials, textiles, lighting, and color in interior space; intro to the physical properties of interior surfacing materials. Prereq: jr standing.

Arch **362 Furniture Design and Construction** (3 cr). Wood furniture design and construction; models and shop drawings; full size construction of prototype.

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, applied to practical building problems by integrating solutions with Architectural Design studio. Coreq: 353 for 365; 354 for 366. Prereq: 353 and 365 for 366.

Arch **383 Environmental Analysis** (2 cr). Goals and identification of architectural form determinants; identification and analysis of architectural programming criteria; intro of applicable computer techinques.

Arch **384 Environmental Analysis** (2 cr). Computer applications in architecture; current techniques for using the computer as a tool in the design process and potential future developments; practical applications in graphics, scheduling, structures, estimating, office management, and other areas of design; preparation of input data for existing programs and analysis of output information. Prereq: 383 or perm; prior experience in computer programming desirable.

Arch **385-386 History of Architecture** (3 cr). Arch 385: History of ancient and medieval architecture—prehistoric, Egyptian, West Asian, Aegean, Greek, Roman, Early Christian, Byzantine, Islamic, Romanesque, and Gothic periods. Arch 386: History of Renaissance and Baroque periods in Europe from 1400 to 1800 and architecture from the 17th to 20th centuries.

Arch **388 Plant Materials** (3 cr). Continuation fo 288. Two lec and two 2-hr studios per wk; selected field trips. Prereq: 288.

Arch **400** (s) **Seminar** (cr arr). Prereq: perm.

Arch **403** (s) **Workshop** (cr arr). Prereq: perm.

Arch **404** (s) **Special Topics** (cr arr).

Arch **451-452 Interior Design II** (3 cr). Advanced problems in interior design. Three 3-hr studios per wk; one 7-day field trip during yr.

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 per wk and assigned work; one 7-day field trip during yr.

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, through projects, 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 456, the student undertakes a self-directed architectural design study; upon consultation with the appropriate instructors, the student may direct this "thesis project" along a variety of lines. Three 3-hr studios per wk and assigned work.

Arch **457 Introduction to Community Development** (3 cr). Process of community design; organizing and financing development projects; community infrastructure and quality of the physical environment, especially the architecture of public

spaces, the urban landscape, and community facilities, both public and private. Also offered by correspondence study.

Arch **459-460 Landscape Architecture III** (6 cr). Arch 459: Fundamentals; analysis and design applied to large-scale recreation and suburban development; soils, vegetation, and other ecological criteria as design determinants. Arch 460: Analysis, development, and presentation of landscape design solutions for diverse recreational land uses such as city, county, state, and federal parks, ski areas, golf courses, and highway rest areas. Three lec and three 2-hr studios per wk; one 7-day field trip during yr. Prereq: 360; 459 for 460.

Arch **461 Interior Systems and Construction** (2 cr). Electrical, mechanical, and plumbing systems for interior designers; interior construction; working drawings.

Arch **463 Environmental Control Systems** (3 cr). Design of water systems, heating, and air conditioning for architectural application.

Arch **464 Environmental Control Systems** (3 cr). Architectural design of lighting and electricity in buildings; principles and technology of design for energy, conservation and alternative energy systems (solar energy, wind power, methane, wood, and hydro power design for local site use.)

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 analyisis; principles and technology of masonry design. Coreq: 453 for 465; 454 for 466. Prereq: 353, 354, 365, and 366 for 465; 453 and 465 for 466.

Arch **472 Professional Practice of Interior Design** (2 cr). Interior designer's duties and responsibilities in professional practice; services, estimating, specifications, and contracts.

Arch **473 Architectural Programming** (2 cr). Research and evaluation for architectural thesis program; research methods and their applications.

Arch **474 Seminar: Problems in Environmental Design** (2 cr). Issue discussion of changing problems and concerns in environmental design; research methods, environmental perception, man and the design of his physical environment, architectural theory and criticism.

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 **483 Introduction to City Planning** (3 cr). History and theory of city planning and problems associated with urban growth.

Arch **484 City Planning** (2 cr). Analysis of 20th-century planning in the U.S. and Europe; group housing and urban development patterns. Prereq: 483.

Arch **485-486 Building Technology III** (2 cr). Seismic analysis in basic and complex buildings; special prloblems (building type); environmental control, communications, and sound control systems.

Arch **488 Park and Recreation Planning** (2 cr). Recreation facilities of community role; recreation concepts; design in relation to community socioeconomic structure, land use, and recreation potential. One lec and one 3-hr studio per wk.

Arch **490 Regional Landscape Planning** (2 cr). Land use, analysis, and planning use in relation to regional scale; problems in special area studies. One lec and one 3-hr studio per wk.

Arch **493-494 Seminar in Urban Studies** (2 cr). See Inter 493-494.

Arch **497 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

Arch **498** (s) **Proseminar** (1-3 cr, max 6). 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).

Arch **562 Concepts in Contemporary Habitation** (3 cr). The house in history establishing precedents for the current pattern of housing with a critical analysis to determine their suitability to the requirements of today's society.

Arch **597** (s) **Practicum** (cr arr). Prereq: perm.

Arch **598** (s) **Internship** (cr arr). Prereq: perm.

Arch **599** (s) **Research** (cr arr). Prereq: perm.

Art

Paul L. Blanton, Head, Dept. of Art and Architecture (102 Art and Arch. North). Faculty: Frank A. Cronk, Nelson S. Curtis, Leo R. Davis, David L. Moreland, George H. Roberts, Arnold S. Westerlund, George T. Wray.

Art **101-102 Survey of Art** (2 cr). Historical overview of man's artistic production to promote an understanding and appreciation of the various arts with emphasis on painting, sculpture, and architecture.

Art **111-112 Drawing I** (2 cr). Freehand drawing; emphasis on expressive use of materials. Two 2-hr studios per wk and assigned work.

Art **121-122 The Creative Process and Design** (2 cr). Intro to the design process; studio problems to familiarize the student with the basic design process, elements of design and development of individual design criteria as related to traditional and experimental concepts of design; studio problems explore basic design through two- and three-dimensional studies, experiences, and readings. Two 2-hr studios per wk and assigned work.

Art **200** (s) **Seminar** (cr arr). Prereq: perm.

Art **203** (s) **Workshop** (cr arr). Normally offered in painting, water color, sculpture, drawing, ceramics, design, printmaking, and jewelry. Prereq: perm.

Art **204** (s) **Special Topics** (cr arr).

Art **211-212 Drawing II** (3 cr). Life drawing; work with various media to develop an understanding of the human figure. Two 2-hr studios per wk and assigned work. Prereq: 111-112.

Art **221-222 Design II** (2 cr). Advanced design explored through various media in two- and three-dimensional problems. Two 2-hr studios per wk and assigned work.

Art **223-224 Graphic Design I** (2 cr). Lettering, typography, and layout. Art 223: basic letter forms and calligraphy. Art 224 (same as Jour 224): typography and layout. One lec and one 3-hr studio per wk.

Art **231-232 Painting I** (2 cr). Intro to the basic fundamentals of painting. Two 2-hr studios per wk and assigned work.

Art **233-234 Water Color I** (2 cr). Intro to techniques of water color painting by individual instruction and group criticism. One lec and one 3-hr studio per wk. Prereq: 111-112.

Art **241-242 Three-Dimensional Design** (2 cr). Studio work in three-dimensional design; basic spatial design concepts; creation of expressive order in space with attention to form, space, arrangement, movement, proportion, volume, unity and contrast. Two 2-hr studios per wk plus assigned work.

Art **261-262 Ceramics I** (2 cr). Intro to clay forming techniques; wheel-thrown and hand-built forming methods; ceramic design concepts; development of individual design criteria; glaze experimentation; fundamental types of ceramic ware; kiln procedures. Two 2-hr studios per wk plus assigned work.

Art **271-272 Jewelry I** (2 cr). Intro to basic jewelry materials and techniques; basic jewelry design concepts; development of individual design criteria. Two 2-hr studios per wk plus assigned work.

Art **299** (s) **Directed Study** (cr arr). Prereq: perm.

Art **301-302 History of Painting** (3 cr). Technical study of the great occidental painters.

Art **311-312 Drawing III** (2 cr). Advanced drawing from the model, nature, and abstract form; emphasis on the individual development of the student. Two 3-hr studios per wk. Prereq: 211-212.

Art **323-324 Graphic Design II** (3 cr). Problems in illustration and advertising design. One lec and two 3-hr studios per wk; one 2-day field trip one semester.

Art **331-332 Painting II** (3 cr). Intermediate painting from the model, nature, and abstract form. Two 3-hr studios per wk and assigned work. Prereq: 111-112 and 231-232.

Art **333-334 Water Color II** (2 cr). Techniques of water color painting; sketching from still life and nature. One lec and one 3-hr studio per wk. Prereq: 111-112.

Art **335-336 Composition** (3 cr). Pictorial composition through student problems. Prereq: 111-112 and 211-212 or 331-332.

Art **341-342 Sculpture I** (2 or 4 cr). Studio investigation of basic sculptural concepts, materials, and techniques. Two 2-hr studios per wk and assigned work for each 2 cr. Prereq: 241-242.

Art **351-352 Printmaking** (2 cr). Art of printmaking; relief, planographic, and intaglio. Two 3-hr studios per wk. Prereq: 111-112.

Art **361-362 Ceramics II** (3 cr). Continuation of basic clay forming and glazing techniques; emphasis on expressive use of materials, design criteria, and development of individual concepts. Three 2-hr studios per wk and assigned work. Prereq: 261-262.

Art **363-364 Clay and Glaze Formulation** (2 cr). Techniques of clay and glaze formulation and experimentation; basic raw materials available in the ceramic industry, methods of calculation, and testing clays and glazes; emphasis on individual experiments and relationship of clay and glaze qualities to individual design concepts. One lec and one 3-hr studio per wk. Prereq: 261-262 or perm.

Art **371-372 Jewelry II** (2 or 4 cr). Advanced jewelry techniques: casting, etching, enameling, metalsmithing, and related areas, processes, and materials; emphasis on both techniques and design. Two 2-hr studios per wk and assigned work for each 2 cr. Prereq: 271-272.

Art **391-392 Crafts in Art Education** (2 cr). Design of leathers and other craft materials.

Art **400** (s) **Seminar** (cr arr). Prereq: perm.

Art **403** (s) **Workshop** (cr arr). Normally offered in painting, water color, sculpture, drawing, ceramics, design, printmaking, jewelry, art education, elementary school art, junior high school art, and senior high school art. Prereq: upper-div standing and perm.

Art **404** (s) **Special Topics** (cr arr).

Art **423-424 Graphic Design III** (3 cr). Advanced problems in illustration and advertising design; lectures on production and studio practice. One lec and two 3-hr studios per wk; one 2-day field trip one semester.

Art **431-432 Painting III** (2-4 cr, max 8). Advanced painting with emphasis on the individual development of the student. Two 3-hr studios per wk and assigned work. Prereq: perm.

Art **433-434 Water Color III** (2 cr).

Art **441-442 Sculpture II** (4 cr). Studio investigation of advanced sculptural concepts, materials, and techniques. Two 4-hr studios per wk and assigned work. Prereq: perm.

Art **461-462 Ceramics III** (3 cr). Advanced individual work in clay forming techniques, glaze experimentation, and kiln procedures; continuation of individual studio work. Three 2-hr studio sessions per wk and assigned work. Prereq: 261-262, 361-362.

Art **463** (s) **Senior Thesis** (2 cr, max 4). Preparation of senior thesis show in one of the following areas: general art, sculpture, painting, design, ceramics, jewelry; final grade assigned by the entire art faculty after the show. Prereq: admission to B.F.A. option.

Art **465** (s) **Ceramic Problems** (4 cr, max 16). Advanced individual studies in specialized areas of ceramics; during alternating semesters the class will concentrate in one or more of the following areas: salt firing, low-fire, raku, porcelain, kiln construction, and kiln firing; emphasis will be placed on individual design concepts, understanding of the inherent qualities of each specialized area under study, and the student's ability to relate individual design concepts to the particular specialized area of study. One lec and one 3-hr studio session per wk and individual work. Prereq: 261-262 and perm.

Art **471-472 Jewelry III** (4 cr). Advanced jewelry techniques with emphasis on design. Two 4-hr studios per wk plus assigned work. Prereq: perm.

Art **497** (s) **Senior Proseminar** (2 cr, max 4). Seminar in professional problems in art; emphasizing specific areas, contemporary tendencies in art, or problems of professional practice. Graded on the basis of P or F. Prereq: upper-div standing.

Art **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by graduate students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

Art **499** (s) **Directed Study** (2 or 4 cr, max 12). 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: upper-div standing and perm.

Art **500 Master's Research and Thesis** (cr arr).

Art **501** (s) **Seminar** (cr arr). Prereq: perm.

Art **502** (s) **Directed Study** (cr arr). Prereq: perm.

Art **503** (s) **Workshop** (cr arr). Prereq: perm.

Art **504** (s) **Studio Problems** (3-5 cr, max 10).

Art **505** (s) **Special Topics** (cr arr).

Art **597** (s) **Practicum** (cr arr). Prereq: perm.

Art **598** (s) **Internship** (cr arr). Prereq: perm.

Art **599** (s) **Research** (cr arr). Prereq: perm.

Bacteriology

Campbell M. Gilmour, Head, Dept. of Bacteriology and Biochemistry (14 Life Sci. Bldg.). Faculty: Guy R. Anderson, Sidney M. Beck, Campbell M. Gilmour, Richard C. Heimsch, Al J. Lingg, John E. Montoure, George W. Teresa.

Bact **101 Food and Life** (3 cr). Scientific concepts which promote consumer understanding of general aspects of food processes, additives, and regulations; food fads and food problems throughout the world; how food relates to your health and your life.

Bact **200** (s) **Seminar** (cr arr). Prereq: perm.

Bact **203** (s) **Workshop** (cr arr). Prereq: perm.

Bact **204** (s) **Special Topics** (cr arr).

Bact **250 General Bacteriology** (4 cr). Primarily for students in the sciences. Two lec and two 2-hr labs per wk. Prereq: Chem 103 or 111.

Bact **254 Public Health and Hygiene** (3 cr). Applied hygiene and sanitation from the standpoint of bacteriological and related sciences; prevention of communicable diseases; environment in relation to health and disease. Also offered by correspondence study.

Bact **299** (s) **Directed Study** (cr arr). Prereq: perm.

Bact **304 Pathogenic Bacteriology** (3 cr). Disease-producing organisms; cultural, biochemical, and morphological characteristics which serve as a means of identification. Prereq: 250.

Bact **305 Pathogenic Bacteriology Laboratory** (2 cr). Isolation and identification of disease-producing organisms. Two 2-hr labs per wk. Prereq or coreq: 304.

Bact **400** (s) **Seminar** (cr arr). Prereq: perm of dept.

Bact **402 Food and Applied Microbiology** (4 cr). Microbiological processes of importance to the food and fermentation industries; spoilage, spoilage control, and sanitation; food poisoning and

food-borne infections. Two lec and two 3-hr labs per wk; one field trip. Prereq: 250.

Bact **403** (s) **Workshop** (cr arr). Prereq: perm.

Bact **404** (s) **Special Topics** (cr arr).

Bact **409 Immunology** (3 cr). Theory and mechanisms of the immune response: immunogens, lymphatics, lymph and the lymphomyeloid complex, humoral and cellular immunity, immunoglobulins, complement, antigen-antibody reactions, immune tolerance, hypersensitivity, immunological deficiencies, blood transfusion, cancer immunology, tissue and organ transplantations and autoimmunity. Prereq: 250.

Bact **410 Immunology Laboratory** (2 cr). Preparation of immunizing agents, agglutination, hemagglutination, complement fixation, precipitation, medical legal serology, phagocytosis, toxins and antitoxins, hypersensitivity, immunoelectrophoresis, geldiffusion analysis, immunofluorescence and autoimmunity. Two 2-hr labs per wk. Prereq or coreq: 409.

Bact **414 Clinical Laboratory Methods** (4 cr). Methods of analysis used in clinical laboratories; lab procedures in hematology, clinical chemistry, and serological diagnosis of disease. Two lec and two 3-hr labs per wk. Prereq: 250, 304, Chem 253.

Bact **421 Clinical Diagnosis: Internship** (1-32 cr, max 32). Lab methods used in hospital and public health labs; work to be pursued in approved and designated hospital or public health labs containing suitable equipment and staff. Twelve mos training. Prereq: 414.

Bact **425 Soil and Aquatic Microbiology** (3 cr). Same as Soils 425. Biogeochemical activities and relationships of microorganisms in soil and aquatic environments. Two lec and one 3-hr lab per wk. Prereq: 250.

Bact **481 Virology** (3 cr). See VS 481.

Bact **483 Virology Laboratory** (1 cr). See VS 483. Prereq or coreq: Bact 481 or VS 481.

Bact **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

Bact **499** (s) **Directed Study** (cr arr). Prereq: perm.

Bact **500 Master's Research and Thesis** (cr arr).

Bact **501** (s) **Seminar** (cr arr). Prereq: perm.

Bact **502** (s) **Directed Study** (cr arr). Areas normally offered are: aquatic, food, immunology, medical, microbial ecology, physiology, and soils. Prereq: perm.

Bact **503 Physiology of Bacteria** (2-4 cr). Alt/yrs 76-77. Cellular physiology as it applies to bacteria; cell structure and composition, metabolism, growth, and variation. Two lec, or two lec with labs per wk. Prereq: 250.

Bact **504** (s) **Workshop** (cr arr). Prereq: perm.

Bact **505 Microbial Fermentations** (2-4 cr). Alt/yrs 77-78. Industrial and nonindustrial fermentations; biochemical mechanisms and methods of fermentation analysis. Two lec, or two lec with labs per wk. Prereq: 250, Chem 372, or perm.

Bact **507 Bacterial Taxonomy** (2 cr). Taxonomic groups of bacteria; philosophies of classification. Prereq: 250, 304.

Bact **512 Microbial genetics** (2-4 cr). Same as Genet 512. Genetics of microorganisms; reproduction, variation, and heredity. Prereq: elem course in genetics is recommended.

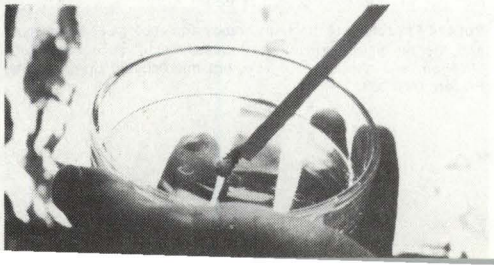
Bact **516 Advanced Fish Diseases** (4 cr). See FWR 516.

Bact **597** (s) **Practicum** (cr arr). Prereq: perm.

Bact **598** (s) **Internship** (cr arr). Prereq: perm.

Bact **599** (s) **Research** (cr arr). Prereq: perm.

Bact **600 Doctoral Research and Dissertation** (cr arr).



Biochemistry

Campbell M. Gilmour, Head, Dept. of Bacteriology and Biochemistry (14 Life Sci. Bldg.). Faculty: Jorg A. L. Augustin, Karen R. Davis, G. Michael Hass, Duane J. Le Tourneau, Paul Muneta, Alvin C. Wiese, Mary V. Zaehringer.

Biochem **205 General Biochemistry** (4 cr). May not be taken for cr after Chem 480 or 481 or equiv. Chemistry as applied to agriculture, composition, metabolism, and growth of plants and animals. Three lec and one 3-hr lab per wk. Prereq: Chem 112 or 114.

Biochem **259 Food Quality Assurance** (4 cr). Chemical and physical characteristics which contribute to the use of particular products as foods; analyses basic to the detection of food quality and safety by determining color, flavor, texture, nutritive value, possible adulteration, and wholesomeness of food products.

Biochem **400** (s) **Seminar** (cr arr). Prereq: perm.

Biochem **401 Undergraduate Research** (1-2 cr, max 4). Individual study. Prereq: sr standing and perm.

Biochem **404** (s) **Special Topics** (cr arr).

Biochem **422 Food Chemistry and Analysis** (3 cr). Alt/yrs 76-77. Two lec and one 3-hr lab per wk. Prereq: Chem 253, 275, or equiv.

Biochem **431 Chemistry and Physiology of Vitamins** (3 cr). Alt/yrs 77-78. Includes their relation to human and animal nutrition. Prereq: course in biochemistry.

Biochem **461 Plant Biochemistry** (3 cr). Alt/yrs 77-78. Composition and metabolism of higher plants. Prereq: course in biochemistry.

Biochem **462 Plant Biochemistry Laboratory** (1 cr). Methods and techniques for analyzing plant materials. One 3-hr lab per wk. Prereq or coreq: 461, Chem 253, or equiv.

Biochem **499** (s) **Directed Study** (cr arr). Prereq: perm.

Biochem **500 Master's Research and Thesis** (cr arr).

Biochem **501** (s) **Seminar** (cr arr). Prereq: perm.

Biochem **502** (s) **Directed Study** (cr arr). Prereq: perm.

Biochem **505 Advanced Laboratory Techniques** (4 cr). Chromatography, spectrophotometry, manometric and other special techniques. Two lec and two 3-hr labs per wk. Prereq: Chem 253 and perm.

Biochem **531 Enzymes and Intermediary Metabolism** (3 cr). Alt/yrs 76-77. Chemistry of enzymes and intermediary metabolism of carbohydrates, lipids, and proteins. Prereq: Chem 481 or equiv.

Biochem **532 Enzymology Laboratory** (1 cr). Alt/yrs 76-77. One 3-hr lab per wk. Prereq or coreq: 531.

Biochem **581 Carbohydrates and Lipid Chemistry** (3 cr). Alt/yrs 76-77. See Chem 581.

Biochem **582 Amino Acids and Protein Chemistry** (3 cr). Alt/yrs 77-78. See Chem 582.

Biochem **600 Doctoral Research and Dissertation** (cr arr).

Biology

Dept. of Biological Sciences (115 Life Sci. Bldg.). Faculty: Doyle E. Anderegg, O. Clifford Forbes, Earl J. Larrison, John L. McMullen, Richard J. Naskali, Fred W. Rabe, Arthur W. Rourke, Edmund E. Tylutki, Richard L. Wallace.

Biol **100 Man and the Environment** (4 cr). Not open to majors or for minor cr. Fundamental concepts of cellular biology, genetics, evolution ecosystem ecology, envirommental problems, and philosophy regarding man's place in nature. Three lec and one 2-hr lab per wk.

Biol **150 Heredity and Man** (2 cr). Same as Genet 106. Not open for cr to majors, minors, or students who have previous cr in genetics. Inheritance with emphasis on man.

Biol **201 Introduction to the Life Sciences** (4 cr). Biological principles important in understanding animals, plants, and

microorganisms; cytology; ecology; evolution; genetics; growth; molecular biology; physiology. Three lec and two 2-hr labs per wk. Prereq: one sem college chemistry recommended.

Biol **202 General Zoology** (4 cr). Anatomy, embryology, histology, and physiology of vertebrate and invertebrate animals; the animal kingdom. Three lec and two 2-hr labs per wk. Prereq: 201.

Biol **203 General Botany** (4 cr). Vegetative and reproductive processes and structures of flowering plants in relation to environment, heredity, economics, and distribution; other divisional representatives of the plant kingdom in relation to flowering plants. Three lec and two 2-hr labs per wk. Prereq: 201.

Biol **207 Introduction to Oceanography** (3 cr). History, methods, and materials; geological, physical-chemical, and biological characteristics of the oceans; biological aspects emphasized. Prereq: course in biological science and sophomore standing.

Biol **331 General Ecology** (3 cr). Ecological principles of plants and animals; structure and function of the ecosystem; major ecosystems of the world. Two lec and one 1-hr dem per wk. Prereq: 202-203 or one yr of biology.

Biol **351 General Genetics** (3 cr). Same as Genet 314. Genetic mechanisms in animals. plants, and microorganisms; forms important in biological research. Also offered by correspondence study. Prereq: 201.

Biol **352 Experimental Genetics** (1 cr). Same as Genet 315. One 3-hr lab per wk. Prereq or coreq: 351 or Genet 314.

Biol **361 Biological Literature** (1 cr). Botanical and zoological literature. Prereq: major in one of the life sciences or twenty cr in any combination of biology, botany, or zoology.

Biol **405 Biological Laboratory Procedures** (2 cr). Lab organization, preparations, and demonstrations using readily available, inexpensive materials.

Biol **442 Biological Evolution** (3 cr). Genetic, ecological, and paleontological aspects of evolution, including that of man. Also offered by correspondence study. Prereq: 202 and 351, or perm.

Biol **443 Bioecology** (3 cr). Consideration of the ecology of plants and animals in the field. Field labs and at least one weekend field trip.

Biol **445 Taxometrics** (3 cr). Quantitative approach to classification; analysis of numerical and computer taxonomics, phenetic and phylogenetic systems, codification of biological entities; applications of information theory to taxonomy; a numerical taxonomic problem worked out on a computer. Prereq: Ag 321 or perm.

Biol **451 Cytology** (3 cr). Structure and function of the nucleus and cytoplasm in animal and plant cells. Two lec and one 3-hr lab per wk. Prereq: 351.

Biol **462 Biological Field and Museum Techniques** (3 cr). Plants and animals in research and exhibit museums; organization and administration of collecting expeditions, types of specimens and field data obtainable, methods of analysis, storage of specimens, exhibit techniques, dissemination of research results. Two lec and one 3-hr lab per wk; one 4-day field trip. Prereq: 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 Colloquium** (1 cr, max 2).

Biol **555 Physiological and Molecular Genetics** (2-3 cr). Same as Genet 537. Prereq: 351 or Genet 314.

Botany

Dept. of Biological Sciences (115 Life Sci. Bldg.). Faculty: Douglass M. Henderson, John L. McMullen, Richard J. Naskali, Lorin W. Roberts, George G. Spomer, Edmund E. Tylutki.

Bot **241 Systematic Botany** (3 cr). Classification and identification of flowering plants; local flora. Two 1-hr lec and two 2-hr labs per wk. Prereq: Biol 203 or perm.

Bot **311 Plant Physiology** (3 cr). Water and mineral relations, plant growth regulators, photophysiology, and selected topics of developmental physiology. Prereq: Biol 203 and organic chemistry.

Bot **312 Plant Physiology Laboratory** (2 cr). Two 3-hr labs per wk. Prereq or coreq: 311.

Bot **325 Morphology of Lower Plants** (4 cr). Structures, life histories, classifications, and phylogeny of fungi and algae. Two lec and two 3-hr labs per wk. Prereq: Biol 203.

Bot **326 Morphology of Bryophytes and Vascular Plants** (4 cr). Structures, life histories, classification, and phylogeny of liverworts, mosses, ferns, clubmosses, horsetails, conifers, and flowering plants. Two lec and two 3-hr labs per wk. Prereq: Biol 203.

Bot **364 Botanical Microtechnique** (3 cr). Methods of treating plant tissues for microscopic examination or histochemical tests. Two 3-hr labs per wk. Prereq: Biol 203 or perm.

Bot **381 Mushroom Identification** (1 cr). Methods of mushroom study; emphasis on the natural history of higher Basidiomycetes and Ascomycetes of the Pacific Northwest. Two 2-hr lec-labs per wk for the first 8 wks; one field trip (Fri-Sat-Sun) to Priest Lake. Prereq: course in biology.

Bot **382 Mold Identification** (1 cr). Methods and procedures for identifying filamentous fungi (Phycomycetes, Ascomycetes, Fungi Imperfecti) commonly found in soil, water, air, and decomposing organic matter. Two 2-hr lec-labs per wk for second 8 wks; two field trips. Prereq: course in biology.

Bot **401 Techniques of Plant-Tissue Culture** (2 cr). Isolation and culture of higher plant cells, tissues, and organs, including physiological studies on the nutrition and morphogenesis of the cultures. Two 3-hr labs per wk. Prereq: perm.

Bot **413 Mineral Nutriton** (3 cr). Alt/yrs 77-78. Same as Soils 448. Physiology of mineral elements in higher plants; essentiality, metabolic function, deficiency symptoms and theories of ion uptake and translocation. Two lec and one 2-hr disc per wk. Prereq: 311 and organic chemistry.

Bot **425 Developmental Plant Anatomy** (4 cr). Origin and development of tissues and organs of vascular plants in relation to heredity, environment, and physiology. Eight hrs per wk. Prereq: Biol 203.

Bot **432 Plant Ecology** (3 cr). Structure, composition, dynamics, and classification of plant communities; role of environmental factors; methods of sampling; phytogeography of North America. Two lec and one 3-hr lab per wk; three 1-day field trips. Prereq: Biol 203, 331; Bot 241 recommended.

Bot **WS435 Synecology** (3 cr). WSU 462. Structure, methods of analysis, and dynamic behavior of plant communities. Prereq: 241.

Bot **WS437 Field Ecology** (2 cr). WSU 463. Structure, environmental relations, and dyamism of local semidesert, grassland, and forest communities. Six hrs of lab per wk; field trips. Prereq: WS435.

Bot **441 Agrostology** (3 cr). Classification, distribution, and structure of grasses. One lec and two 3-hr labs per wk. Prereq: Biol 203 and Bot 241.

Bot **472 Biology of Fungi** (4 cr). Life activity of fungi; examination of structure, life histories, and classification. Two lec and two 3-hr labs per wk. Prereq: Biol 203 or perm.

Bot **474 Phycology** (4 cr). Morphology and ecology of fresh water and marine algae; principles of classification; collection, identification, and making of permanent microscopic preparations. Prereq: Biol 203.

Bot **499** (s) **Directed Study** (cr arr). Prereq: perm.

Bot **500 Masters'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 Colloquium** (1 cr, max 2).

Bot **512 Plant Growth Substances** (3 cr). Alt/yrs 76-77. Physiology of some auxin-regulated growth phenomena; current theories of auxin action in higher plants. Two lec and one 2-hr disc per wk. Prereq: 311 and organic chemistry.

Bot **532 Plant Environmental Biophysics** (3 cr). Alt/yrs 76-77. Nature of plant environments, dynamics of plant-environment interactions, and analysis and control of plant environments for ecological studies. Two lec and one 2-hr lab-disc per wk. Prereq: 432.

Bot **535 Plant Geography** (3 cr). Alt/yrs 77-78. Same as Geog 525. 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. Prereq: 432 or perm.

Bot **539 Physiological Ecology** (2 cr). Alt/yrs 77-78. Physiological mechanisms which influence plant distribution; natural inhibitors, toxins, symbiosis, soil nutrients, radiation, micro- and macroorganismal interrelationships. Prereq: 432.

Bot **ID558 Genetics of Fungi** (3 cr). Alt/yrs 76-77. Same as Genet 511. Genetic systems and sexuality of fungi. Prereq: 472, Biol 351, or perm.

Bot **WS575 Basidiomycetes** (3 cr). Alt/yrs 76-77. WSU PIP 522. Taxonomy, physiology, and reproduction of rusts, smuts, and higher basidiomycetes. Two lec and one 3-hr lab per wk. Prereq: 472.

Bot **WS576 Ascomycetes and Fungi Imperfecti** (2 cr). Alt/yrs 77-78. WSU PIP 523. Taxonomy, phylogeny, physiology, reproduction of ascomycetes, and fungi imperfecti. One lec and one 3-hr lab per wk. Prereq: 472.

Bot **WS577 Lower Fungi** (2 cr). Alt/yrs 77-78. WSU PIP 524. Taxonomy, phylogeny, physiology, and reproduction of aquatic and terrestrial phycomycetes and myxomycetes. One lec and one 3-hr lab per wk. Prereq: 472.

Bot **WS590 Advanced Topics in Botany** (2 cr). Recent research in plant science; includes library research and preparation of a term paper. Prereq: major in botany or equiv.

Bot **600 Doctoral Research and Dissertation** (cr arr).

Business

Donald W. Seelye, Dept. Head (335 Admin. Bldg.). Faculty: C. Randall Byers, Sherman F. Carter, Donald Del Mar, Clifford I. Dobler, Eugene F. Golis, John H. Hallaq, John A. Magee, Edward B. Newsome, Norman C. Olson, Philip D. Olson, Glen B. Owen, Jr., Charles A. Park, William H. Parks, Donald W. Seelye, George D. Wagenheim, Hugh P. Williamson, Jr.

Bus **101 Introduction to Business Enterprises** (3 cr). Not open to upper-division majors in the College of Business and Economics. Private enterprise system; marketing, management, finance, production; business-government relationships, organized labor, ethical and social responsibilities of business organizations.

Bus **133 Introduction to Computer Information Systems** (2 cr). Same as InfSc 133. Survey of ligital computer systems and application including historical background, data representation, programming concepts and languages, societal implications, and government regulation; applications to government, education, and business.

Bus **R135 Principles of Cost Estimating** (3 cr). Techniques and skills; cost elements, data sources, and their application.

Bus **R136 Government Contract Pricing** (3 cr). Methodology of pricing. Prereq: R135 or perm.

Bus **R137 Fundamentals of Purchasing** (3 cr). Basic principles and methods of procurement, including contract types, finance, law, organization, and management.

Bus **200** (s) **Seminar** (cr arr). Prereq: perm.

Bus **204** (s) **Special Topics** (cr arr).

Bus **R215 Government Contract Negotiation** (3 cr). Prime and subcontractor selection and negotiation with emphasis on management and behavior concepts; evaluation of contractors, marketing, precontract matters, and negotiation of all types of contracts. Prereq: perm.

Bus **221 Marketing** (3 cr). (321). 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. Also offered by correspondence study.

Bus **231 Statistics** (4 cr). Same as InfSc 231. Intro to probability theory, statistical estimation, statistical inference, and regression analysis. Prereq: Math 112 or 180.

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. Prereq: Acctg 202.

Bus **302 Financial Institutions and Credit** (3 cr). Emphasis on financial intermediaries, investment banking, and government financial institutions. Prereq: Econ 252.

Bus **311 Introduction to Management Theory** (3 cr). Organization, planning, leadership, and control; evolution of philosophies of management, decision-making, motivation, human relations, and communication; organizational behavior and organizational theory; historical and present management practices, showing interrelationships between the needs and expectations of the individual, the organization, and society.

Bus **312 Industrial Management** (3 cr). Intro to production and operations management, including inventory, quality control, simulation techniques, scheduling, production processes, job design, standards setting, plant layout, maintenance, product design, and queueing problems; analytical approach stressed in problem in identification and modeling; quantification employed when feasible or necessary. Prereq: 231, 311.

Bus **323 Principles of Advertising** (3 cr). Function; social and economic aspects; motivation, copy illustration, layout, and media; campaign planning. Also offered by correspondence study. Prereq: 221 and jr standing.

Bus **324 Sales Management** (3 cr). Selecting, training, compensating, stimulating, supervising, and directing the selling efforts of an outside sales force; organization and methods. Prereq: 221.

Bus **R325 Advanced Purchasing** (3 cr). Function of purchasing; solicitation, selection of contracts, administration, changes, and problems in the procurement process.

Bus **332 Quantitative Methods in Business** (3 cr) (232). Same as InfSc 332. Survey of operations research; linear and dynamic programming, inventory, queueing, simulation, Markov, and bidding. Prereq: 231.

Bus **333 Introduction to COBOL** (2 cr). Same as InfSc 333. Intro to COBOL programming for business; includes coverage of files and data base management systems.

Bus **R360 Government Contract Law and Administration** (3 cr). Principles of law which affect a government agency's action; emphasis on AEC. Prereq: perm.

Bus **R361 Contract Changes and Terminations** (3 cr). Theory and techniques associated with changes in scopes of work called for in prime and subcontracts.

Bus **365 Business Law** (3 cr). Law and its relationship to society; legal framework of business enterprises; court organization and operation; private property and contract as basic concepts in a free enterprise system. Also offered by correspondence study.

Bus **400** (s) **Seminar** (cr arr). Prereq: perm.

Bus **401 Investments** (3 cr). Security analysis and portfolio management; types of securities and their suitability to various in-

vestment goals. One 1-day field trip. Also offered by correspondence study. Prereq: 301.

Bus **403 Insurance** (3 cr). Major branches of insurance; principles and practices.

Bus **404 Life Insurance** (3 cr). Companies, contracts, uses, premium computations, and economic aspects. Prereq: 403 or perm.

Bus **405** (s) **Special Topics** (cr arr).

Bus **406 Problems in Financial Management** (3 cr). Analysis of selected financial management problems; includes short- and long-term problems; working capital management, capital budgeting and valuation; research project and analysis of cases. Prereq: 301 and sr standing.

Bus **411 Organization Theory** (3 cr). Integration of classical organization theory with the development of human relations and organic open-system models; interpersonal communications, various influence models, the role of tasks and technologies and reward theory are stressed in the determination of appropriate organizational structures. Prereq: 311 or perm.

Bus **412 Personnel Management** (3 cr). Basic personnel management functions, including manpower planning, recruiting, selection-testing, orientation, wage and salary administration, employee evaluation, training, promotion, worker safety, executive development, pension and other benefits, administration and retirement planning; legal emphasis. Prereq: 311 or perm.

Bus **413 Human Relations in Business** (3 cr). Worker motivation and development through motivational communication, leadership style and quality, formal/informal group interaction, group interaction, group conflict dynamics, organizational change, MBO, job-enrichment philosophies and techniques. Prereq: 311 or perm.

Bus **414 Business Policy** (3 cr). Culminating program of study in business administration; designed to employ all area skills acquired during previous formal study; integration of skills through case analysis and other methods; written and oral reports. Prereq: 311.

Bus **423 Retail Merchandising and Distribution** (3 cr). Location, capital, and physical requirements; store organization, personnel, merchandise, and pricing; buying and receiving; sales promotion; customer services; retail expense management. Prereq: 221.

Bus **425 Intermediate Marketing Management** (3 cr). Demand analysis theory; structure of distribution and location theory; organizational buying behavior; decision making by marketing management. Prereq: 221, Econ 251-252.

Bus **R434 Management of Major Procurements** (3 cr). Problems associated with the procuring of major items and systems, such as special contracts, negotiation techniques, organization, quality assurance, expediting, inspection, and disputes. Prereq: perm.

Bus **435 Operations Research I: Linear Programming** (2 cr). Same as InfSc 435. Linear programming; simplex method, computer solution, sensitivity analysis, and applications. Prereq: 133 or Engr 131, and Bus 332, or perm.

Bus **436 Business and Economic Fluctuations** (3 cr). Same as Econ 436. Application of recent theoretical, statistical, and institutional developments to business forecasting. Prereq: 231, Econ 372, or perm.

Bus **437 Statistics for Business Decisions** (2 cr). Same as InfSc 437. Decision making under uncertainty; utility theory. Prereq: 231.

Bus **438 Intermediate Managerial Statistics** (3 cr). Variance simple and multiple regression, matrix models, correlation theory, and sampling techniques. Prereq: 231.

Bus **439 Systems and Simulation** (2 cr). Same as InfSc 439. Distribution theory, random numbers, modeling concepts, and simulation of queueing and inventory systems. Prereq: 231, 332, and 233 or Engr 131.

Bus **R440** (s) **Special Topics in Computer Applications** (3 cr, max 12). Normally offered in graphic devices and applications, conversational languages and terminals, assembly language, and computer storage devices. Prereq: perm.

Bus **441 Labor Relations** (3 cr). Negotiations and administration of current union-management issues.

Bus **442 Government Regulation of Business** (3 cr). Analysis and appraisal of major types of public policy toward business activity; emphasis on antitrust laws.

Bus **451 Marketing Problems** (3 cr) (421). Distribution channels and policies, sales promotion; price determination and policies. Prereq: 221, 323, 425.

Bus **452 Marketing Research and Analysis** (3 cr) (422). Purposes, methods, and techniques; market-potential analysis; product analysis and adoption. Prereq: 221, 231.

Bus **453 Operations Research II: Queueing Theory** (1 cr). Same as InfSc 453. Distribution theory, birth-death processes, single and multiple server models. Prereq: 231, 332.

Bus **454 Operations Research III: Game Theory** (1 cr). Same as InfSc 454. Utility theory, zero-sum games, nonzero-sum games, psychological implications. Prereq: 231.

Bus **455 Integer, Nonlinear, and Dynamic Programming** (1 cr). Same as InfSc 455. Introduction. Prereq: 435.

Bus **456 Quality Control** (2 cr). Same as InfSc 456. Designing of efficient and effective systems for the maintenance of quality. Prereq: 231.

Bus **457 Operations Research IV: Nonparametric Statistics** (1 cr). Same as InfSc 457. Methodology of nonparametric statistical tests. Prereq: 231.

Bus **461 Real Estate** (3 cr). Listing, selling, leasing, financing, and brokerage; fundamentals of valuation and listing property management. Also offered by correspondence study.

Bus **462 Real Property Appraisal** (3 cr). Theories and principles in estimating value of natural resources and any attached improvements. Prereq: Econ 252 or perm.

Bus **X463 Real Estate Fundamentals** (0 cr). Practical basic study of real estate activity; legal, social, economic, and financial operational phases of real estate in Idaho.

Bus **X464 Real Estate Law** (0 cr). Practical applied study of Idaho real estate law; to help avoid legal difficulties arising from real estate transactions.

Bus **466 Business Law** (3 cr). Law of sales, negotiable instruments, security interests in properties, and business regulations dealing with competitive torts, antitrust, and federal trade regulations; business ethics. Also offered by correspondence study. Prereq: 365 or perm.

Bus **467 Business Law** (3 cr). Legal concepts of agency, partnerships, corporations, securities regulation (Securities Act of 1933 and 1934), personal property, real property, and environmental law. Prereq: 365 or 466.

Bus **470 Motion Study, Time Study, and Job Design** (2 cr). Principles and concepts for the effective and efficient employment of labor. Prereq: 231.

Bus **471 Product Design, Value, and Engineering Analysis** (1 cr). Analytical approach to reducing manufacturing costs via product design, process specification, and distribution methods. Prereq: 231.

Bus **499** (s) **Directed Study** (cr arr). Prereq: perm.

Bus **500 Master's Research and Thesis** (cr arr).

Bus **501** (s) **Seminar** (cr arr). Normally offered in real estate, investments, insurance, government regulation of business, industrial management, industrial relations, and current business problems. Prereq: perm.

Bus **502** (s) **Directed Study** (cr arr). Prereq: perm.

Bus **503 Financial Policy** (3 cr). Social and economic implications of the financial process. Prereq: perm.

Bus **505** (s) **Workshop** (cr arr). Prereq: perm.

Bus **513 Human Behavior in Organization** (3 cr). Seminar concerned with worker and supervisor behavior and attitudes, work group behavior, leadership and motivation, communication and decision making; the effect of organizational structure on behavior and the effect of change and new technology on human behavior. Prereq: perm.

Bus **521 Advanced Marketing** (3 cr). Production development,

pricing, demand creation, physical distribution, and channel selection. Prereq: perm.

Bus **525 Industrial Management** (3 cr). Techniques of and decision making in production management; quantitative approaches of resource allocation to problems of production. Prereq: perm.

Bus **532 Dynamics of Business Decisions** (3 cr). Same as InfSc 532. Statistical decision theory and operations research techniques. Prereq: 231 or perm.

Bus **533 Automatic Systems** (1 cr). Same as InfSc 533. Types of computers for accumulation and control of accounting data; programming and multiple use of data; audit of machine systems.

Bus **580 Business Policy** (3 cr). See Inter 580.

Bus **R595-R596 Statistical Methods in Business Applications** (3 cr). Development and application of mathematical statistics to business procedures. Prereq: perm.

Bus **597** (s) **Practicum** (cr arr). Prereq: perm.

Bus **598** (s) **Internship** (cr arr). Prereq: perm.

Bus **599** (s) **Research** (cr arr). Prereq: perm.

Business Education

James A. Bikkie, Director, Div. of Vocational Teacher Education (210 Educ. Bldg.). Faculty: John P. Holup (Distributive Education), Robert M. Kessel (Business Education); Robert V. Tarpchinoff (Distributive Education).

BusEd **200** (s) **Seminar** (cr arr). Prereq: perm.

BusEd **203** (s) **Workshop** (cr arr). Prereq: perm.

BusEd **204** (s) **Special Topics** (cr arr).

BusEd **299** (s) **Directed Study** (cr arr). Prereq: perm.

BusEd **400** (s) **Seminar** (cr arr). Prereq: perm.

BusEd **403** (s) **Workshop** (cr arr). Prereq: perm.

BusEd **404** (s) **Special Topics** (cr arr).

BusEd **491-492 Teaching Business Education I-II** (2-3 cr; 3 cr). Methods and materials. BusEd 491: office occupations. BusEd 492: basic business subjects. Prereq: perm.

BusEd **493 Teaching Distributive Education** (3 cr). Same as VocEd 493. Selection, organization, and presentation of subject matter pertaining to preparatory distributive education programs at the secondary-school level; emphasis on teaching methods and techniques.

BusEd **494 Distributive Education Materials** (2 cr). Same as VocEd 494. Examination, development, and application of instructional materials in distributive education.

BusEd **495 Supervising DECA Programs** (2 cr). Same as VocEd 495. Role of DECA in distributive education; organization and implementation of youth activities.

BusEd **496 Directed Work Experience** (2 cr). Same as VocEd 496. Job analysis and descriptions; weekly work-experience reports and analysis coordinated with problems related to the student's employment in an approved distributive occupation. Prereq: perm.

BusEd **497 Coordination Techniques** (3 cr). Same as VocEd 497. Problems of the coordinator in the cooperative part-time program; guidance and selection; placing students in work stations; assisting job adjustment; developing the training program.

BusEd **498** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

BusEd **499** (s) **Directed Study** (cr arr). Prereq: perm.

BusEd **500 Master's Research and Thesis** (cr arr).

BusEd **501** (s) **Seminar** (cr arr). Prereq: perm.

BusEd **502** (s) **Directed Study** (cr arr). Prereq: perm.

BusEd **503** (s) **Workshop** (cr arr). Normally offered in office occupations, economic education, and distributive education.

BusEd **504** (s) **Special Topics** (cr arr).

BusEd **520 Office Occupations Subjects** (3 cr). Methods and materials; standards of achievement; review of literature and research. Prereq: perm.

BusEd **521 Basic Business Subjects** (3 cr). Methods and materials; standards of achievement; review of literature and research. Prereq: perm.

BusEd **522 Issues in Business Education** (3 cr). Philosophies, objectives, trends, and organization patterns of business education in secondary schools. Prereq: perm.

BusEd **523 Adult Distributive Education** (3 cr). Establishing and developing adult programs in distributive education. Prereq: perm.

BusEd **524 Issues in Distributive Education** (3 cr). Same as VocEd 524. Philosophies, objectives, trends, and organization, patterns of distributive education in secondary schools. Prereq: perm.

BusEd **597** (s) **Practicum** (cr arr). Prereq: perm.

BusEd **598** (s) **Internship** (cr arr). Prereq: perm.

BusEd **599** (s) **Research** (cr arr). Prereq: perm.

Chemical Engineering

Dwight S. Hoffman, Dept. Chairman (312 Buchanan Engr. Lab.). Faculty: Louis L. Edwards, Robert L. Furgason, Wayne R. Hager, Dwight S. Hoffman, Melbourne L. Jackson, Jay J. Scheldorf, George M. Simmons, Donald C. Sundberg, William J. Thomson.

ChE **100 Introduction to Chemical Engineering Analysis** (2 cr). Primarily for women to acquaint them with engineering. Offered summers only for selected students. Intro to analysis of chemical engineering operations and processes; emphasis on application of elementary computer technology. Prereq: Engr 131 or equiv and perm of dept.

ChE **200 Sophomore Seminar** (0 cr). Discussion sessions to allow an exchange of ideas among the sophomores, other students in the Department of Chemical Engineering, and faculty members. Topics of current concern to the profession stressed. Graded on the basis of P or F.

ChE **204** (s) **Special Topics** (cr arr).

ChE **299** (s) **Directed Study** (cr arr). Prereq: perm.

ChE **243-244 Chemical Engineering Laboratory** (3-4 cr). May not be used to fill cr requirements for B.S.Ch.E. degree. Unit operations and chemical reactions related to elementary theory, equipment operations, materials of fabrication, and instrumentation and measurements. One or two lec and two 3-hr labs per wk.

ChE **271 Process Engineering** (2-3 cr). Applications of unit operations, chemical reactions, and economic and other relevant nontechnical guidelines to selected chemical process industries.

ChE **300 Junior Seminar** (0 cr). Discussion sessions to allow an exchange of ideas among juniors, other students in the Department of Chemical Engineering, and faculty members; stress on topics of current concern to the profession. Graded on the basis of P or F.

ChE **323 Material and Energy Balances** (3 cr). Conservation of material and energy calculations with examples from selected chemical processes and unit operations. Prereq: Chem 114, Math 190.

ChE **326 Chemical Engineering Thermodynamics** (3 cr). Application of thermodynamics to chemical process calculations; behavior of fluids including estimation of properties by generalized methods, phase equilibria, and chemical reaction equilibria. Prereq: ES 321; coreq: 323.

ChE **330 Stagewise Operations** (3 cr). Stagewise process operations including distillation, extraction, absorption, and ion exchange. Coordinated lec-lab periods. Prereq: 323, ES 321.

ChE **344 Automatic Process Control** (3 cr). Process dynamics and control, including application of industrial instruments to processing systems. Two lec and one 3-hr lab per wk. Prereq: EE 200, Math 310.

ChE **390 Introduction to Chemical Engineering Principles** (3 cr). For chemists and engineers. Material and energy balances and unit operations used in chemically related industries. Prereq: perm.

ChE **393 Chemical Engineering Projects** (1-3 cr, max 9). Problems of a research or exploratory nature. Prereq: perm of dept.

ChE **404** (s) **Special Topics** (cr arr).

ChE **410 Fundamentals of Polymer Science and Processing** (1-3 cr). Structure and formation of polymers, polymerization processes, flow characteristics, mechanical and general properties, fabrication processes. Prereq: perm.

ChE **423 Reactor Kinetics and Design** (3 cr). Kinetics and design of chemical reactors; chemical equilibrium reaction rates; catalysis and reactor types. Prereq: 323, Chem 306, Math 310.

ChE **430-431 Transport and Rate Processes I-II** (3-4 cr). Transport phenomena involving mass, heat, and momentum transfer, with applications; design of processing equipment from rate considerations including chemical reactors and such unit operations as drying, crystallization, filtration, sedimentation, and fluidization. Coordinated lec-lab periods. Prereq: 323, ES 320, Math 310; coreq: Chem 306.

ChE **435 Energy Conversion Systems** (3 cr). Same as ME 435. Energy sources and their conversion to useful power including conversion systems and associated economics; topics include: nuclear fission, fusion, and radiation; geothermal; thermionic and fossil fuels.

ChE **453-454 Chemical Process Analysis and Design** (3 cr). Estimation of equipment and total investment costs, annual costs and profits, and the indices of attractiveness, optimization, design of equipment, and entire processes including economic considerations, selection of alternate equipment, and processing schemes; design in the presence of uncertainty; case studies on selected processes. One 1-wk field trip. Prereq: 330, Econ 251; coreq: 423, 431.

ChE **WS470 Fundamentals of Air Pollution** (3 cr). WSU CE 470. Sources, magnitude, and impact; chemistry of urban atmospheres, photochemistry of smog, and meteorological forces. Prereq: Chem 111, Chem 114.

ChE **491-492 Seminar** (0 cr). Professional aspects of the field; recent developments and topics. Graded on the basis of P or 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).

ChE **515 Transport Phenomena** (3-4 cr). Same as ME 515. Unified treatment of momentum, heat, and mass transfer in three dimensions; unsteady state; pertinent vector equations; methods of solution. Prereq: perm.

ChE **525 Advanced Heat Transfer** (2-3 cr). Applications of fundamentals of heat conduction, radiation, and convection; relationships to fluid dynamics and mass transfer; economics and design applications. Prereq: perm.

ChE **527 Advanced Chemical Engineering Thermodynamics** (2-3 cr). Equilibrium in physical and chemical systems; theoretical and generalized prediction of thermodynamic properties of pure materials and solutions, including deviations from ideality. Prereq: perm.

ChE **529 Chemical Engineering Kinetics** (2-3 cr). Analysis of industrial chemical reactions; theories of reaction rates and catalysis; catalytic reactor design. Prereq: perm.

ChE **534 Chemical Engineering Processes** (2-3 cr). Industrial processes, including electrochemistry and high pressure technology, petroleum refinery engineering, and pulp and paper technology. Prereq: perm.

ChE **537 Advanced Fluid Mechanics** (2-3 cr). Fluid systems encountered in industry; non-Newtonian behavior of particle and plastic systems; two-phase situations including fluidization and film flow. Prereq: perm.

ChE **541 Chemical Engineering Analysis I** (2-3 cr). Same as ME 541. Mathematical analysis of chemical engineering operations and processes; mathematical modeling and computer applications. Prereq: perm.

ChE **542 Chemical Engineering Analysis II** (2-3 cr). Numerical and analytical methods applied to solution of chemical engineering problems; numerical techniques to solve partial differential equations including matrix manipulations and iterative techniques; application of approximate variational methods and integral transforms. Prereq: perm.

ChE **544 Advanced Process Control** (2-3 cr). Theory of process dynamics and systems engineering. Two lec and one 3-hr lab per wk. Prereq: perm.

ChE **545-546 Mass Transfer Operations I-II** (2-3 cr). Diffusional and equilibrium stagewise operations: absorption, drying, distillation, extraction, etc.; design calculations. Prereq: perm.

ChE **571 Advanced Plant Design** (2-3 cr). Design of process plants for optimum cost and economic return; scale-up of pilot plants; comprehensive problems in chemical engineering design. Prereq: perm.

ChE **600 Doctoral Research and Dissertation** (cr arr).

Chemistry

Jean'ne M. Shreeve, Dept. Head (116 Phys. Sci. Bldg.). Faculty: James L. Barrus, Dennis G. Brown, James H. Cooley, Verl G. Garrard, Edgar H. Grahn, Merland W. Grieb, Donald A. Gustafson, Dwight Ingle, Michael D. Kluetz, Richard A. Porter, Elmer K. Raunio, Malcolm M. Renfrew, George M. Rubottom, Jean'ne M. Shreeve, Richard J. Spangler, Chien M. Wai, Robert D. White, James D. Willett.

RELATED FIELD: See biochemistry.

ADVANCED PLACEMENT: Courses in this subject field which are vertical in content are: 111-112-253; 111-114; 103-275.

Chem **100 Chemical Fundamentals** (1 cr). Accelerated treatment of chemical problem solving including SI unit conversion, mole concept, specific heat, specific gravity, chemical stoichiometry, and solution concentration problems. Advanced placement credit is not allowed for students who are permitted to bypass this course.

Chem **101 Concepts of Chemistry** (4 cr). Nonmathematical descriptive treatment relating key developments of chemistry to modern living. Three lec, dem, and one 2-hr lab per wk.

Chem **102 Chemistry and the Citizen** (3 cr). Impact of chemistry on society; what is new in chemical technology and its effect on the public; transfer of chemical know-how to underdeveloped nations; guidelines for the nonscientist in evaluating chemical science and industry.

Chem **103 Introduction to Chemistry** (4 cr). Credit will not be allowed in both Chem 103 and 111. A general treatment of the fundamentals of chemistry. Three lec, one rec, and one 3-hr lab per wk. Does not satisfy the prereq for Chem 112 or 114. Prereq or coreq: 100 or adequate score on chemical-fundamentals examination.

Chem **111 Principles of Chemistry** (4 cr). Credit will not be allowed in both Chem 103 and 111. Intensive treatment of principles and applications of chemistry. Three lec, one rec, and one 3-hr lab per wk. Prereq or coreq: 100 or adequate score on chemical-fundamentals examination.

Chem **112 Inorganic Chemistry and Qualitative Analysis** (5 cr). Elementary theoretical chemistry and its application to analytical practice. Lab work in the qualitative separation of cations and anions by semimicro methods. Max six cr in 112 and 114 combined. Three lec and two 3-hr labs per wk. Prereq: 111 or perm.

Chem **114 General Chemistry** (4 cr). Continuation of 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 112 and 114 combined. Three lec, one rec, and one 3-hr lab per wk. Prereq: 111 or perm.

Chem **121 Glassblowing** (1 cr). Techniques used in constructing scientific apparatus and artistic objects from glass. One 3-hr lab per wk.

Chem **200** (s) **Seminar** (cr arr). Prereq: perm.

Chem **253 Quantitative Analysis** (5 cr). Theory and practice of gravimetric and volumetric analysis; intro to modern analytical chemistry. Three lec and two 3-hr labs per wk. Prereq: 112 or 114.

Chem **275 Carbon Compounds** (3 cr). Aspects of organic chemistry important to students in the life sciences. Duplicate credit will not be allowed in first-year courses in organic chemistry. Prereq: 103 or perm.

Chem **277 Organic Chemistry I** (3 cr). Principles and theories of organic chemistry and the properties, preparations, and reactions of organic compounds. Duplicate credit will not be allowed in first-year courses in organic chemistry. Prereq: 112 or 114.

Chem **278 Organic Chemistry I: Laboratory** (1 cr). Lab to accompany 275 or 277. One 3-hr lab per wk. Prereq or coreq: 275 or 277.

Chem **299** (s) **Directed Study** (cr arr). Prereq: perm.

Chem **302 Principles of Physical Chemistry** (3 cr). Emphasis on topics important in biological and agricultural sciences. Prereq: 112 or 114, Math 180, Phys 113, or perm.

Chem **303 Principles of Physical Chemistry Laboratory** (1 cr). Lab to accompany 302. One 3-hr lab per wk. Prereq or coreq: 302.

Chem **305-306 Physical Chemistry** (3 cr). Kinetic theory, thermodynamics, and the constitution of matter. Prereq: 112 or 114, Math 200; prereq or coreq: Phys 222.

Chem **307-308 Physical Chemistry Laboratory** (1 cr). Lab to accompany 305-306. One 3-hr lab per wk. Prereq or coreq: 305-306.

Chem **372 Organic Chemistry II** (3 cr). Continuation of 277. Prereq: 277.

Chem **374 Organic Chemistry II: Laboratory** (1 cr) Lab to accompany 372. One 3-hr lab per wk. Prereq or coreq: 372.

Chem **376 Organic Chemistry II: Laboratory** (2 cr). Primarily for majors. Lab to accompany 372, including qualitative analysis and modern instrumental techniques. Two 3-hr labs per wk. Prereq or coreq: 372.

Chem **400** (s) **Seminar** (cr arr). Prereq: perm.

Chem **409 Proseminar** (1 cr). Current publications in chemistry and chemical engineering with reports on typical scientific papers. Prereq: 372 and sr standing.

Chem **R413 Radiochemistry for Engineers** (2 cr). Primarily for engineers. Properties of nuclear particles, nuclear reactions, techniques of producing reactions, interaction of radiation with matter, and radiochemical techniques. Prereq: perm.

Chem **416 Methods in Radiochemistry** (3 cr). Basic theory and practice in use of radionuclides; practical lab experience. Two lec and one 3-hr lab per wk. Enrollment is limited by facilities. Prereq: 306 or perm.

Chem **418 Environmental Chemistry** (3 cr). Case histories in which new chemical processes or products have had recognizable impact upon ecological systems either directly or through primary modification of the physical environment; responsibilities of industry, governmental laboratories, and universities for corrective action; chemical counter measures for damage to environment. Graded on the basis of P or F. Prereq: jr standing and perm.

Chem **435 Principles of Chemical Instrumentation** (4 cr). Two lec and two 3-hr labs per wk. Prereq: 253, Phys 222, or perm.

Chem **441 Chemical Literature** (1 cr). Survey of important chemical reference works and periodicals with experience in the use of these sources. Prereq: perm.

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 per wk. Prereq: 253, 305; prereq or coreq: 306.

Chem **463 Inorganic Chemistry** (3 cr). Principles, complex ions and coordination compounds, theory of acids and bases, nonaqueous solvents, familiar elements and their relationship to the periodic table. Prereq: 305; prereq or coreq: 306 or perm.

Chem **464 Inorganic Chemistry Laboratory** (1 cr). Lab to accompany 463. One 3-hr lab per wk. Coreq: 463.

Chem **473 Intermediate Organic Chemistry** (3 cr). Theories and mechanisms of organic chemistry. Prereq: 372; prereq or coreq: 306.

Chem **475 Qualitative Organic Analysis** (3 cr). Homologous reactions and the separation and identification of various types of organic compounds. One lec and two 3-hr labs per wk. Prereq: 372 or perm.

Chem **480 Elements of Biochemistry** (3 cr). Survey. Max six cr in any combination of 480, 481, and 482. Prereq: 112 or 114, 275 or 277.

Chem **481-482 Biochemistry** (3 cr). Modern biochemistry. Max six cr in any combination of 480, 481, and 482. Prereq: 372 and 302 or 306, or perm.

Chem **483 Biochemistry Laboratory** (1-2 cr, max 2). One 3-hr lab per wk. Prereq: 278; coreq: 480, 481 or 482.

Chem **491** (s) **Research** (1-6 cr, max 6). Submission of a report of the research done for placement in the permanent departmental files is required. Prereq: perm of dept.

Chem **495 Chemical Thermodynamics** (3 cr). Partial molar quantities and systems of variable composition, application to solutions of nonelectrolytes and electrolytes; intro to statistical thermodynamics. Prereq: 306. Students unable to demonstrate a proficiency in elementary thermodynamics and calculus will be required to review 305.

Chem **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the supervision of a faculty member. Graded on the basis of P or F. 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 **WS503 Advanced Topics in Inorganic Chemistry** (3 cr, max arr). Recent significant developments. Prereq: 561.

Chem **504** (s) **Workshop** (cr arr). Prereq: perm.

Chem **ID507 Topics in Physical Chemistry** (1-9 cr, max 9). Colloid chemistry, polarography, nuclear magnetic and electron paramagnetic resonance; kinetics of irreversible processes; other topics not covered extensively in regularly scheduled courses. Prereq: perm.

Chem **509-510 Advanced Physical Chemistry** (3 cr). Applications of quantum theory to chemical bonding, molecular spectroscopy, and molecular structure. Prereq: 306 or perm.

Chem **513 Nuclear Chemistry** (3 cr). Intro to artificial and natural radioactivity, tracer methods, and atomic energy. Prereq: 306 or Phys 360.

Chem **R516 Methods in Radiochemistry** (3 cr). Radiochemical techniques and applications of tracers to chemistry; fundamentals of radioactive decay; statistical relationships; interaction of radiation with matter; production of radioactive samples; chemistry of radioactive elements. Prereq: perm.

Chem **517 Chemistry of High Polymers** (3 cr). Relationship of structure and properties of polymeric materials; applications of thermodynamic principles of polymers and their solutions; kinetics of polymerization. Prereq: 306.

Chem **WS525 Advanced Topics in Analytical Chemistry** (2 cr, max arr). Selected current developments. Prereq: perm.

Chem **WS537 Advanced Topics in Physical Chemistry** (2 cr, max arr). Selected subjects; irreversible thermodynamics; chemical bonding; NMR; ligand field theory; X-ray diffraction; neutron diffraction.

Chem **WS544 Advanced Topics in Organic Chemistry** (3 cr, max arr). Current research. Prereq: 575.

Chem **553 Modern Analytical Methods** (3 cr). Absorption and emission spectroscopy, polarography, potentiometry, nuclear magnetic resonance, chromatography. Prereq: 306, 454, or perm.

Chem **555 Advanced Analytical Chemistry** (3 cr). Fundamental principles of classical analytical chemistry; homogeneous and heterogeneous equilibria, complex ions; analytical separations, nonaqueous equilibria. Prereq: 306 or perm.

Chem **556 Chemical Spectroscopy** (3 cr). Interpretation of spectra.

Chem **R557 Topics in Analytical Chemistry** (1-6 cr, max 6). Techniques and methods not usually covered in 555; potentiometry, polarography, coulometry, and spectroscopic methods. Prereq: perm.

Chem **561 Advanced Inorganic Chemistry** (3 cr). Theoretical approach to the underlying principles of inorganic chemistry with an integration of theory and descriptive chemistry. Prereq: 306, 463, or perm.

Chem **563 Advanced Inorganic Chemistry Laboratory** (2 cr, max 4). Inorganic preparations utilizing aqueous, nonaqueous, and high vacuum techniques. Prereq or coreq: 561.

Chem **ID565 Topics in Inorganic Chemistry** (1-9 cr, max 9). Coordination compounds; halogens; less familiar elements; clathrate, interstitial, nonstoichiometric compounds; chemical bonding; inorganic reaction mechanisms. Prereq: perm.

Chem **WS568 Advanced Topics in Biochemistry** (2 cr, max arr). Recent research in selected areas. Prereq: 482.

Chem **ID571 Topics in Organic Chemistry** (1-9 cr, max 9). Selected topics from the current literature. Prereq: perm.

Chem **573 Synthetic Organic Chemistry** (3 cr). Use of organic reactions in synthesis.

Chem **575 Mechanisms of Organic Reactions** (3 cr). Nucleophilic substitution; reactions of carboxylic acids and esters; carbanions, electrophilic, and nucleophilic aromatic substitutions; elimination and addition reactors. Prereq: 306, 473.

Chem **579 Physical Organic Chemistry** (3 cr). Physical chemical methods applied to organic chemistry.

Chem **581 Carbohydrate and Lipid Chemistry** (3 cr). Alt/yrs 76-77. Same as Biochem 581. Carbohydrates, lipids, and related compounds. Prereq: 482.

Chem **582 Amino Acid and Protein Chemistry** (3 cr). Alt/yrs 77-78. Same as Biochem 582. Amino Acids, proteins, and nucleoproteins. Prereq: 482.

Chem **ID583 Advanced Topics in Biochemistry** (1-9 cr, max 9). Recent research in enzymes, hormones, complex lipids, vitamins, nucleic acids, antibiotics, viruses, and biochemical genetics. Prereq: perm.

Chem **600 Doctoral Research and Dissertation** (cr arr).

Civil Engineering

Frederick J. Watts, Dept. Chairman (103 Buchanan Engr. Lab.). Faculty: Charles E. Brockway, John S. Gladwell, Donald F. Haber, Forrest H. Hall, James H. Hardcastle, Cecil W. Hathaway, Terry R. Howard, Frank S. Junk, Robert P. Lottman, James H. Milligan, George R. Russell, Ronald L. Sack, Alfred T. Wallace, Calvin C. Warnick, Frederick J. Watts.

CE **112 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 per wk. Prereq: Math 140 and Engr 101 or Arch 155 or Geog 380.

CE **200** (s) **Seminar** (cr arr). Prereq: perm.

CE **203** (s) **Workshop** (cr arr). Prereq: perm.

CE **204** (s) **Special Topics** (cr arr).

CE **211 Engineering Measurements** (4 cr). Primarily for engineering students. Theory and practice; types and distribution of errors; manipulation of instruments; route and land surveying; construction surveys; intro to photogrammetry and urban planning. Three lec and one 3-hr lab per wk. Prereq: Math 140 and Engr 101 or equiv.

CE **218 Elementary Surveying and Photogrammetry** (3 cr). Primarily for nonengineering students. Theory of measurement; public land surveying and manipulation of surveying instruments; principles of photogrammetry and photo-interpretation. Two lec and one 3-hr lab per wk. Prereq: Math 140.

CE **299** (s) **Directed Study** (cr arr). Prereq: perm.

CE **ID317 Land Surveying** (2 cr). History and development; related laws; preparation and filing of property descriptions and plats; subdivision planning; methods for property surveys. Prereq: 211.

CE **ID319 Photogrammetry and Photo-Interpretation** (3 cr). Geometry of single and stereoscopic pairs of aerial photographs; stereo-plotters; photo-interpretation; applications to problems of engineering importance. Two lec and one 3-hr lab per wk. Prereq: 211.

CE **321 Hydrology** (2 cr). See AgE 351.

CE **322 Hydraulics** (2 cr). Applied principles of fluid mechanics; open channel flow, pressure conduit flow, urban storm drainage. Prereq: ES 320.

CE **342 Theory of Structures** (4 cr). Analysis of stresses and strains in statically determinate and indeterminate beam, truss, and rigid frame structures; effects of moving loads; matrix displacement method. Three lec and one 3-hr lab per wk. Prereq or coreq: ES 340.

CE **345 Structural Design** (3 cr). Continuation of ES 340 and CE 342. Intro to design concept. Two lec and one 3-hr lab per wk. Prereq: ES 340 and CE 342.

CE **357 Mechanical Properties of Materials** (3 cr). Characteristics and measurement of stress-strain stiffness and strength properties of structural materials for improvement, selection, and design. Two lec and one 3-hr lab per wk. Prereq: ES 340.

CE **372 Transportation Engineering** (4 cr). Intro to planning, design, construction, operation, maintenance, and administration of transportation systems with emphasis on highways and airports. Three lec and one 3-hr lab per wk. Prereq: jr standing.

CE **400** (s) **Seminar** (cr arr). Prereq: perm.

CE **403** (s) **Workshop** (cr arr). Prereq: perm.

CE **404** (s) **Special Topics** (cr arr).

CE **420 Fluid Mechanics II** (3 cr). Analysis of fluids in motion; basic laws for systems and control volumes; Navier-Stokes equations; boundary layer theory; potential flow. Prereq: ES 320.

CE **421 Open Channel Hydraulics** (3 cr). See AgE 458.

CE **ID422 Hydraulic Design** (3 cr). Hydraulic problems in planning and design of gravity and pressure systems; intro to unsteady flow. Two lec and one 3-hr lab per wk; one field trip. Prereq: perm.

CE **431 Sanitary Engineering** (4 cr). Application of basic engineering sciences to treatment of domestic and industrial water supplies; treatment and disposal of domestic sewage and industrial wastes. Three lec and one 3-hr lab per wk. Prereq: 322.

CE **432 Sanitary Engineering Techniques** (3 cr). Physical, chemical, and biological techniques for analysis of sanitary engineering problems; development of design criteria for common operations and processes. Two lec and one 3-hr lab per wk. Prereq: perm.

CE **441 Reinforced Concrete Design** (3 cr). Emphasis on ultimate strength method in accordance with latest ACI building code. Two lec and one 3-hr lab per wk. Prereq: 345.

CE **444 Steel and Timber Design** (4 cr). Working-stress design and plastic design of steel using latest AISC specs. One credit on timber design using latest NFPA specs. Three lec and one 3-hr lab per wk. Prereq: 345.

CE **460 Soil Mechanics** (3 cr). Physical and mechanical properties of soils; behavior of soil structures under load; application to engineering problems. Prereq: ES 320 and ES 340.

CE **WS461 Foundations** (3 cr). WSU 435. Analysis of design of foundation elements; retaining walls, sheet piling, cofferdams, and waterfront structures. Prereq: 441, 460; coreq: 444.

CE **468 Engineering Properties of Soils** (2 cr). Laboratory measurement of physical and mechanical properties of soils with related application. One lec and one 3-hr lab per wk. Prereq: 460.

CE **473 Highway Planning** (2 cr). Origin-destination surveys and analysis; traffic generation, distribution, and assignment; transportation and land use planning, organization, and implementation. Prereq: 372.

CE **474 Highway Design and Operations** (3 cr). Fundamentals of geometric design and traffic engineering for urban and rural highways. Prereq: 372.

CE **475 Pavement Design** (3 cr). Methods and comparative analysis of structural and other performance capabilities of flexible and rigid pavements. Prereq: 357, 372.

CE **482 Project Management Techniques** (3 cr). Application of critical path and other optimization methods to project management and systems analysis. Prereq: sr standing.

CE **ID484 Engineering Law and Contracts** (2 cr). Development of law, courts, and ethics; laws of contracts, agency, sales, property, and patents; specifications; preparation of contract documents. Prereq: sr standing.

CE **486 Engineering Economy** (3 cr). Economic analysis and comparison of engineering alternatives by annual-cost, present-worth, capitalized cost, and rate-of-return methods; income tax considerations. Prereq: sr standing.

CE **491-492 Seminar** (0 cr). Technical topics, employment practice and interviewing procedures, and field trips. One 3-5 day field trip may be required. To be taken during last two semesters in residence. One meeting per wk. Graded on the basis of P or F.

CE **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: 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).

CE **ID521 Hydraulics Design** (3 cr). Dams, spillways, and outlet works; design of a major structure. Two lec and one 3-hr lab per wk. Prereq: perm.

CE **ID523 Water Resources Systems** (3 cr). Concepts in water development; coordination of development of other natural resources; systems approach and optimization techniques. Prereq: perm.

CE **524 Water Resources Planning** (3 cr). Utilization of water resources in a river system; provision for domestic water supply,

power, flood control, navigation, irrigation, and recreational use; design and feasibility problems; guest lecturers. Prereq: perm.

CE **WS525 Intermediate Fluid Mechanics** (3 cr). WSU 550. Basic flow equations; Navier-Stokes equations; similitude; potential flow, boundary layers, turbulence, and diffusion; uniform and nonuniform conduit flow; drag and lift. Prereq: ES 320.

CE **WS526 Turbulent Flow and Diffusion** (2 cr). WSU 551. Theories of turbulent motion and diffusion in flow with applications in jet, pipe, and natural environments. Prereq: ES 320.

CE **WS527 Advanced Hydraulic Engineering** (3 cr). WSU 552. Water hammer, flow establishment, surge tanks, transient flow in open channels; intro to hydraulic machinery. Prereq: perm.

CE **WS528 Stochastic Hydrology** (3 cr). WSU 559. Applications of probability in hydrology; analysis and evaluation of hydrologic data; regression analyses and simulation techniques. Prereq: 321 and a course in statistics.

CE **WS530 Instrumental Analysis for Water Pollution Control** (2 cr). WSU 540. Theory and methods of analysis of water, wastewater, and air; electrometric, spectrophotometric, and chromatographic techniques.

CE **ID&WS531 Unit Operations of Sanitary Engineering** (3 cr). WSU 541. 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 Unit Processes of Sanitary Engineering** (3 cr). WSU 542. Analysis and design of chemical and biological processes of water and waste treatment, stream pollution analysis, gas transfer, biological oxidations, aerobic and anaerobic processes, and combustion processes. Prereq: perm.

CE **WS533 Environmental Health Engineering Practice** (2 cr). WSU 548. Mathematical principles applied to environmental health investigation and control.

CE **ID534 Sanitary Engineering Analysis** (2 cr). Theoretical and lab methods for development of design criteria for sanitary engineering systems. One lec and one 3-hr lab per wk. Prereq: perm.

CE **ID536 Wastewater Treatment System Design** (2 cr). Application of unit operations and processes to design of integrated wastewater treatment systems; critical analysis of existing designs. Prereq: 531; coreq: 532.

CE **WS537 Environmental Health** (2 cr). WSU 543. Control of the air, land, and water environment as factors in man's health and well being. Prereq: 431 or elem bact.

CE **WS538 Engineering Aspects of Aquatic Biology** (4 cr). WSU 584. Role of microorganisms including bacteria, algae, fungi, and protozoa in water and waste treatment processes.

CE **WS539A Industrial Waste Problems** (2 cr). WSU 545. Evaluation and possible solutions of industrial waste problems.

CE **WS539B Water Quality Management** (3 cr). WSU 546. Systems analysis applied to management of water quality problems including economic, political, and sociological aspects.

CE **WS539C Radiological Health** (3 cr). WSU 547. Sources and units of radiation and radioactivity, radiological health, radiation detection, and radioactive waste disposal.

CE **WS539D Air Pollution Meterology** (3 cr). WSU 571. Weather and climate; atmospheric turbulence; transport and diffusion to air pollution problems by modeling, statistical, and graphic treatment.

CE **WS539E Air Pollution Measurement Techniques** (2 cr). WSU 572. Survey design and site selection; identification and determination of air pollutants by chemical and physical methodology; data reduction and presentation.

CE **WS539F Air Pollution Abatement and Administration** (3 cr). WSU 573. Control measures; process modification; atmospheric dilution; air quality criteria and standards; administration of air pollution control agencies.

CE **WS539G Engineering Aspects of Aquatic Chemistry** (3 cr). WSU 583. Chemical principles as applied to water supply and pollution control engineering.

CE **WS539H Applied Stream Sanitation** (3 cr). WSU 586. Assimilating capability and complex self purification capacity of a natural water system.

CE **WS539J Radiological Wastes** (4 cr). WSU 588. Sources of radioactive solid, gaseous, and liquid wastes; decontamination; disposal by dilution; concentration and curtailment.

CE **541-542 Design of Structures I-II** (3 cr). CE 541: arches, reinforced concrete applications, including prestressed concrete and thin-shell design. CE 542: nonprismatic member analysis, secondary stresses, composite sections, plate girder design. Prereq: 441, 444, or perm.

CE **543 Structural Dynamics** (3 cr). Analysis and design of reinforced concrete and steel structures for seismic, blast, and mechanical disturbances. Prereq: 441, 444, Math 310.

CE **544 Buckling in Structures** (3 cr). Analysis of elastic and inelastic stability of columns, trusses, rigid frames, plates, and shells; lateral stability of beams. Prereq: 444, Math 310.

CE **546 Finite Element Analysis** (3 cr). Formulation of theory from basic consideration of mechanics; applications in areas such as structural engineering, solid mechanics, soil and rock mechanics, and fluid flow. Prereq: perm.

CE **548 Elasticity** (3 cr). Same as ME 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: perm.

CE **ID556 Physical Properties of Concretes** (3 cr). Design aspects of portland cement and asphalt concrete mixtures; physical and mechanical properties; effects of aggregate and binder constituents. Two lec and one 3-hr lab per wk. Prereq: 357 or perm.

CE **557 Mechanical Properties of Elastic and Nonelastic Materials** (3 cr). Quantitative effects and methods of stress-strain mode, time, and temperature on overall stress, strain, and stiffness of structural materials encountered in civil engineering; concepts of fracture mechanics. Prereq: 357 or perm.

CE **ID561-ID562 Advanced Soil Mechanics I-II** (3 cr). CE ID561: effective stresses and lateral earth pressures; interrelationships of applied stresses, pore pressure, permeability, strain, and shear strength of soils; application to retaining walls, trenches, and tunnels. CE ID562: consolidation and seepage; theory, design, and construction of shallow and deep foundations and earth embankments; slope stability analysis and control. Prereq: 460.

CE **563 Seepage and Earth Dams** (3 cr). See GeolE 535.

CE **571 Transportation Engineering** (2-3 cr). Demand, economic applications of various modes of transportation, economic impact on land areas of transportation development, national transportation policy, and metropolitan and regional transportation studies. Prereq: 372 or perm.

CE **572 Traffic Engineering** (2-3 cr). Urban street systems, traffic signals, signing, striping and illumination, mathematical statistics of traffic, freeway operations, warrants, accident analysis, traffic research and administration. Prereq: 372 or perm.

CE **576 Airport Engineering** (2 cr) (476). Planning and design of air transportation facilities including terminal areas, runways, and navigational aids. Prereq: 372.

CE **577 Highway Capacity** (2 cr) (477). Analysis of rural and urban highway and intersection capacity for design and operations. Prereq: 372.

CE **589 Water Resources Seminar** (1 cr). See Inter 589.

CE **597** (s) **Practicum** (cr arr). Prereq: perm.

CE **598** (s) **Internship** (cr arr). Prereq: perm.

CE **599** (s) **Research** (cr arr). Prereq: perm.

CE **600 Doctoral Research and Dissertation** (cr arr).

Communication

Don H. Coombs, Director, School of Communication (214 Univ. Classroom Ctr.). Faculty: Bert C. Cross.

Comm **120 Mass Communications in a Free Society** (2 cr). Role of the media of mass communication; their performance and significance in a free society.

Comm **200; 400** (s) **Seminar** (cr arr). Prereq: perm.

Comm **203; 403** (s) **Workshop** (cr arr). Prereq: perm.

Comm **204; 404** (s) **Special Topics** (cr arr).

Comm **299; 499** (s) **Directed Study** (cr arr). Prereq: perm.

Comm **360 Advertising Media and Sales: Broadcast** (2 cr). Examination and evaluation of television and radio as media for advertising; includes network and spot buying procedures; emphasis on local rate structures, market studies, and sales techniques.

Comm **362 Advertising Media and Sales: Print** (2 cr). Examination and evaluation of newspapers, magazines, outdoor, direct mail, and point of purchase displays as media for advertising; includes media buying procedures, selling and servicing advertising through local print media.

Comm **366 Creative Processes of Advertising** (4 cr). Development of advertising ideas into message strategy for all media; emphasis on copywriting style and structure, graphic design, television production. One lec and two labs per wk.

Comm **370 Communication and Attitude Change** (3 cr). Different approaches to attitude change, with consideration of special applications in the mass media.

Comm **372 Principles of Public Relations** (3 cr) (472). Problems and practices; techniques for mass media; projects related to student's interest.

Comm **445 Internship** (1-8 cr, max 8). Supervised internship in professional fields of communication; students work in positions commensurate with their abilities and interests. Graded on the basis of P or F. Prereq: perm of dept.

Comm **455 History of Mass Communication** (3 cr). Growth and development of mass media in the U.S.; social and political impacts on American society.

Comm **488 Theory in Communication** (3 cr). Alt/yrs. Interdisciplinary approach to understanding the process of communication.

Comm **490 Law of Mass Communication** (3 cr). Freedom of the press, libel, right to know, privacy, contempt, regulation of advertising, radio, and television.

Comm **491 Propaganda** (2 cr). Nature and techniques of propaganda; emphasis on propaganda of lobbies, pressure groups, and special interest groups.

Comm **492 Mass Communication and Public Opinion** (2 cr). Role of mass media in forming public opinion; effects of media opinion and attitude change.

Comm **496 Senior Research Project** (3 cr). Communication research project with close faculty supervision.

Dance

Leon G. Green, Director, Div. of Health, Physical Education and Recreation (203 Mem. Gym.). Faculty: Diane B. Walker (Director, Center for Dance).

Dan **105** (s) **Dance** (1 cr, max arr). Same as PE 105. Modern, ethnic, ballet, jazz, square, and social dancing. Two hrs per wk. Graded on the basis of P or F.

Dan **112 Dance Techniques** (2 cr). Modern dance, composition, and rhythmic analysis. Three hrs per wk.

Dan **113 Problems in Dance Composition** (1 cr, max 4). Various styles, choreography, movement quality, music, costuming, and staging. Two hrs per wk. Prereq: 105 or perm.

Dan **200; 400** (s) **Seminar** (cr arr). Prereq: perm.

Dan **203; 403** (s) **Workshop** (cr arr). Prereq: perm.

Dan **204; 404** (s) **Special Topics** (cr arr).

Dan **220 Rhythms for Children** (2 cr). Alt/yrs 77-78. Movement, structured rhythmic movement form; creative rhythmic movement; teaching rhythms and creative movement. One lec and two hrs lab per wk.

Dan **299; 499** (s) **Directed Study** (cr arr). Prereq: perm.

Dan **320 Labanotation** (1 cr). Alt/yrs 76-77. Intro to methods of notating movement; history of notation; fundamentals of labanotation; drafting a score; reconstruction of movement score notated in labanotation; teaching methods. Two hrs lab per wk.

Dan **321 Theory and Techniques of Teaching Dance** (2 cr). Teaching modern dance, dance composition, and folk dance. Three hrs per wk.

Dan **325 Dance Production** (2 cr). Alt/yrs 76-77. Organization and production of dance concerts; publicity; set design; costumes; lighting; make-up; accompaniment; house and stage management. One lec and two hrs lab per wk.

Dan **383 Advanced Dance Composition, Rehearsal, and Performance** (1 cr, max 4). Includes choreography and reconstruction of notated dance scores. Prereq: 113 (2 cr), 320, and 2 yrs of concert experience.

Dan **420 Dance Accompaniment** (3 cr). Emphasis on recorded music, percussion, and electronic accompaniments used for contemporary dance. Prereq: MusC 141, MusH 321-322.

Dan **421 Dance History** (3 cr). Dance history and its relation to other art forms; contemporary theatre dance and dance education. Prereq: Art 101 or 102, MusH 321-322.

Dan **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

Economics

Max E. Fletcher, Dept. Head (339 Admin. Bldg.). Faculty: David C. Campbell, Richard T. Dailey, Michael J. Di Noto, Max E. Fletcher, Shaikh M. Ghazanfar, Catherine A. Hofmann, John W. Knudsen, Gary A. Lynch.

Econ **170 Contemporary Economics** (3 cr). Economic issues and the economic principles involved. One semester survey course for nonmajors. Less technical than 251-252.

Econ **251-252 Principles of Economics** (3 cr). Econ 251: organization and operation of American economy; supply and demand; money and banking; employment and aggregate output; public finance; economic growth. Econ 252: principles governing production, price relationships, and income distribution. Econ 251 and 252 each carry two credits after 170. Also offered by correspondence study. Prereq: 251 or perm for 252.

Econ **272 Foundations of Economic Analysis** (4 cr). Not open to students who have taken 251-252 or equiv. Concepts underlying micro- and macroeconomic analysis. Econ 272 carries three credits after 170. Prereq: Math 111-112 or equiv.

Econ **299** (s) **Directed Study** (cr arr).

Econ **321 Intermediate Microeconomic Analysis** (3 cr). Theory of the consumer, firm, industry, market, price determination, and allocation of productive resources. Honors section covering additional selected topics offered fall semester. Prereq: 251-252 or perm.

Econ **372 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. Honors section covering additional selected topics offered spring semester. Prereq: 251-252 or perm for regular sections; 321 or perm for honors section.

Econ **R395 Fundamentals of Economics** (4 cr). Primarily for students in the M.B.A. program. Concepts underlying micro- and macroeconomic analysis. Prereq: perm.

Econ **400** (s) **Seminar** (cr arr). Prereq: perm.

Econ **402** (s) **Workshop** (cr arr). Prereq: perm.

Econ **403 Money and Banking** (3 cr). Influence of money and banking on economic activity and of monetary policies to achieve society's economic goals. Also offered by correspondence study. Prereq: 251-252 or 272.

Econ **409 Public Finance** (3 cr). Federal government expenditures and taxation; structure and economic effects of the federal tax system; analysis of tools of fiscal policy and public debts. Prereq: 251-252 or 272.

Econ **410 State and Local Government Finance** (3 cr). Criteria for and determinants of expenditures; equity, adequacy, and economic impact of taxes; urban fiscal problems; intergovernmental relations. Prereq: 251-252 or 272.

Econ **430 Regional Economics** (3 cr). Methods of economic analysis appropriate to regional problems; application to Pacific Northwest. Prereq: 251-252 or 272.

Econ **433 Introduction to Econometrics** (3 cr). Use of quantitative techniques to analyze and test economic theories. Prereq: Bus 231 or equiv statistics.

Econ **435 American Economic Development** (3 cr). Patterns and causes of change in the American economy from colonial times to the present. Prereq: 170 or 251-252 or 272.

Econ **436 Business and Economic Fluctuations** (3 cr). See Bus 436.

Econ **441 Labor Economics** (3 cr). Application of contemporary and traditional economic theory to the labor market. Prereq: 251-252 or 272.

Econ **474 International Economics** (3 cr). Analysis of the significance and determination of international trade flows, national commercial and balance of payments policies, and the international monetary system. Prereq: 252 or 272.

Econ **477 Economics of Developing Countries** (3 cr). Same as AgEc 477. Characteristics of underdevelopment; historical perspective; population growth; barriers to growth; theories explaining development; development policies. Prereq: 251-252 or 272 or perm.

Econ **485 Welfare and Environmental Economics** (3 cr) (385). Welfare economics, "public goods," and the application of economic theory to environmental problems, including pollution. Prereq: 321 or 272 or perm.

Econ **490 Comparative Economic Systems** (3 cr). Origin, development, and attributes of major contemporary economic systems. Prereq: 170 or 251-252 or 272.

Econ **493-494 Seminar in Urban Studies** (2 cr). See Inter 493-494.

Econ **499** (s) **Directed Study** (cr arr). Prereq: perm.

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).

Econ **505 History of Economic Thought** (3 cr). Economic doctrines; value and distribution; 19th-century dissenters.

Econ **507 Research Methodology** (3 cr). See AgEc 507.

Econ **521 Advanced Microeconomic Theory** (3 cr). Same as AgEc 521. Effects of rational decision making by individuals, firms, and governments on the allocation and distribution of resources.

Econ **522 Advanced Aggregate Economics** (3 cr). Same as AgEc 522. Determinants of national income, employment, price levels, and economic growth.

Econ **523 Advanced Monetary Theory** (3 cr). Same as AgEc 523. Influence of monetary systems and policies on the performance of the economy.

Econ **524 Theory of Economic Development** (3 cr). See AgEc 524.

Econ **525 Econometrics** (3 cr). See AgEc 525.

Econ **526 Business Conditions Analysis** (3 cr). Social accounting and macroeconomic theory pertaining to economic forecasting and analysis. Prereq: perm.

Econ **597** (s) **Practicum** (cr arr). Prereq: perm.

Econ **599** (s) **Research** (cr arr). Prereq: perm.

Education

Thomas O. Bell, Director, Division of Teacher Education (301 Educ. Bldg.). Faculty: Eldon D. Archambault, Terry R. Armstrong, Thomas O. Bell, Melvin W. Farley, Zeph H. Foster, Mark L. Freer, Judith Ann George, Marjorie L. Green, Hobart G. Jenkins, Paul F. Kaus, Edward L. Kelly, Gwendolyn N. Kelly, Joseph T. Kelly, Ruth A. Krukar, Frances B. Maib, Thomas E. Richardson, Everett V. Samuelson, Robert H. Shreve, Lewis B. Smith, Herbert J. Vent, Edward C. Woolums, Larry K. Wriggle, Maynard F. Yutzy. See also faculty listings with business education, guidance and counseling, industrial education, library science, and vocational teacher education.

RELATED AREAS: For other offerings in the field of education, see: agricultural education, art, business education, guidance and counseling, home economics, industrial education, library science, music, physical education, special education, and vocational teacher education.

PREREQUISITE: For registration in upper-division courses in education, students must have been admitted to the teacher-education program and have a grade point average of 2.00, unless a higher average is stated as a prerequisite in the course description.

Ed **200** (s) **Seminar** (cr arr). Prereq: perm.

Ed **201 Introduction to Teaching** (2 cr). Includes teaching aid experience, writing objectives, courses and unit planning, teaching strategies, and classroom evaluation techniques. Two lec plus fifty hrs of clinical experience in the public schools during semester.

Ed **203** (s) **Workshop** (cr arr). Prereq: perm.

Ed **204** (s) **Special Topics** (cr arr).

Ed **273 International Education Scene** (1-9 cr, max 9). Study-tour conducted by a University of Idaho faculty member to observe selected educational systems and procedures in foreign countries. One cr per wk.

Ed **275 Elementary School Art Methods** (2 cr). Materials and techniques; correlation of art with other subjects and activities.

Ed **299** (s) **Directed Study** (cr arr). Graded on the basis of P or F. Prereq: perm.

Ed **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 educative process.

Ed **303 Kindergarten Education** (2-3 cr). History, theory, equipment, and practices; helping the child become oriented to school routine.

Ed **314 Strategies for Teaching** (2-3 cr). Problems and methods of teaching common to all subject and grade levels. Two lec or two lec and three hrs of microteaching lab per wk.

Ed **315 Secondary School English Methods** (2-3 cr). Special methods, problems, and materials. Two lec or two lec and three hrs of microteaching lab or field problems per wk.

Ed **316 Secondary School Social Studies Methods** (2 cr). Special methods, problems, and materials.

Ed **317 Secondary School Science Methods** (2 cr). Special methods, problems, and materials.

Ed **318 Secondary School Mathematics Methods** (2 cr). Special methods, problems, and materials.

Ed **319 Secondary School Art Methods** (2 cr). Special methods, problems, and materials.

Ed **320 Primary Language Arts Methods** (3 cr). Not open for cr to students who have taken 322 or 338. Reading readiness; intro to reading; extension of reading skills.

Ed **322 Intermediate Language Arts Methods** (3 cr). Not open for cr to students who have taken 320 or 338. Reading skills, vocabulary development, study habits, relatedness of the areas of language arts.

Ed **326 Elementary School Mathematics Education** (3 cr). Curriculum; availability and use of instructional materials and devices. Prereq: Math 135-136.

Ed **C&X338 Methods and Materials in Language Arts** (3 cr). Not open for cr to students who have taken 320 or 322. The language arts program; reading, spelling, communication, and handwriting; readiness, retardation, enrichment, and selection of materials.

Ed **341 Secondary School Foreign Language Methods** (2 cr). Special methods, problems, and materials.

Ed **381 Elementary School Music Methods** (3 cr). See MusT 381.

Ed **400** (s) **Seminar** (cr arr). Prereq: perm.

Ed **402 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm of dept.

Ed **403** (s) **Workshop** (cr arr). Prereq: perm.

Ed **404** (s) **Special Topics** (cr arr).

Ed **406 Elementary School Team Teaching** (3 cr). Philosophy; organization; trends in building construction for team teaching; curriculum materials; role of teacher, pupils, and auxiliary personnel.

Ed **411 The Junior High School** (3 cr). Principles, organization, administration, and methods of instruction.

Ed **415 Educational Psychology** (3 cr). Application of psychological principles and methods to the school situation. Prereq: Psych 100.

Ed **421 Elementary School Social Studies Methods** (2-3 cr). Curriculum, instructional materials, and devices. Two 2-hr lec or two 2-hr lec and 3 hrs of microteaching lab per wk; one ½-day and one 1-day field trip.

Ed **426 Organization and Administration of School Media Centers** (3 cr). Standards for media programs, physical facilities, staffing, budget, media services, and in-service programs.

Ed **428 Audiovisual Aids** (3 cr). Principles and methods of audiovisual education; administration of audiovisual program in schools. Class limited to twenty-five.

Ed **429 Elementary School Curriculum** (3 cr). Overview; goals; curricula and techniques; place of skills and abilities; content areas; appreciative and creative programs. Also offered by correspondence study.

Ed **430 Practicum: Elementary School Teaching** (3-9 cr, max 9). Offered each nine wks. Supervised teaching in elementary schools. Graded on the basis of P or F. Prereq: 320 or 322, 326, 445, Psych 205 or Ed 415, cumulative GPA of 2.25, and perm of dept. (Submit application to director of clinical experiences in teacher education by December 1 of school year prior to enrolling.)

Ed **431 Practicum: Secondary School Teaching** (3-9 cr, max 9). Offered each nine wks. Supervised teaching in secondary schools. Graded on the basis of P or F. Prereq: 314, 445, Ed 415, cumulative GPA of 2.25, and perm of dept. (Submit application to director of clinical experiences in teacher education by December 1 of school year prior to enrolling.)

Ed **432 Practicum: Music Teaching** (3-9 cr, max 9). Supervised teaching in grades 1-12; two-thirds of the experience is in secondary schools. Graded on the basis of P or F. Prereq: 314, 445, Ed 415, cumulative GPA of 2.25, and perm of Dept. (Submit application via coordinator of music education to the director of clinical experiences in teacher education by December 1 of school year prior to enrolling.)

Ed **434 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. Also offered by correspondence study.

Ed **435 Practicum: Elementary School Teaching (Special)** (3 cr). Primarily for secondary education students majoring in art or physical education who wish to qualify for Idaho endorsement to teach these subjects at the elementary level. Graded on the basis of P or F. Prereq: special methods in the subject area. (Submit application to director of clinical experiences in teacher education by December 1 of school year prior to enrolling.)

Ed **436 Elementary School Reading** (3-6 cr, max 6). Teaching reading at the primary and intermediate levels.

Ed **438 Elementary School Mathematics Laboratory** (3 cr). Construction and solution to problems based on experiments that may be easily performed in elementary schools.

Ed **439 Comparative Education** (3 cr). Educational systems in relation to the cultural backgrounds which give rise to them.

Ed **443 Teaching of Geography** (3 cr). Same as Geog 492. Trends, methods, audiovisual materials, planning the program, specialized skills and forces contributing to change in geographic education.

Ed **444 Elementary School Science Methods** (2-3 cr). Instructional materials and devices. Two lec or two lec and 3 hrs of microteaching lab per wk; one ½-day and one 1-day field trip.

Ed **445 Proseminar in Teaching** (1 cr). Offered each nine wks. Orientation to practicum. Graded on the basis of P or F.

Ed **448 Production and Use of Media in Education** (3 cr). Production, utilization, and organization of media in the student's field of interest. Prereq: experience in teaching.

Ed **460 The Logic of Teaching** (3 cr). Analysis of the logical operations which are employed in the teaching act.

Ed **467 Developing Reading Efficiency** (3 cr). Detection and correction of factors which interfere with the development of efficient reading.

Ed **468 Contemporary Education** (3 cr). Role of education and problems of the profession in modern society as related to historical and philosophical backgrounds.

Ed **473 International Education Scene** (1-9 cr, max 9). See 273.

Ed **498 Instructional Television Institute** (6 cr). Preparation, utilization, and evaluation of telecourses.

Ed **499** (s) **Directed Study** (cr arr). Graded on the basis of P or F. Prereq: perm.

Ed **500 Master's Research and Thesis** (cr arr).

Ed **501** (s) **Seminar** (cr arr). Prereq: perm.

Ed **502** (s) **Directed Study** (cr arr). Prereq: perm.

Ed **503** (s) **Workshop** (cr arr). Prereq: perm.

Ed **504 Educational Administration** (3 cr). Principles and problems of organization and administration of city, county, and state systems. Two field trips.

Ed **505 School Finance** (3 cr). Theory of financing schools; applications to Idaho problems. Prereq: 504.

Ed **506 Elementary Educational Administration** (3 cr). Patterns of organization of grades 1-6; problems and techniques. Prereq: 10 cr in ed.

Ed **507 Supervision of Instruction** (3 cr). To prepare supervisors of instruction so they can aid teachers in the improvement of instruction.

Ed **508 Secondary Education Administration** (3 cr). Problems of organization, administration, and supervision of the secondary school; problems of small high schools.

Ed **509 Educational Television** (2 cr). Experience in educational innovations.

Ed **510 Philosophy of Education** (3 cr). Analysis of educational objectives, concepts, and theories.

Ed **511 Secondary School Curriculum** (3 cr). Principles underlying curriculum construction in secondary schools.

Ed **512 Curriculum Construction** (3 cr). Preparation of course of study outlines in the major subject areas. Prereq: 511 or perm.

Ed **513 History of Educational Thought** (3 cr). Writings which have influenced educational theory and practice.

Ed **515 Logic of New Media** (3 cr). Technological development in education; advanced forms of media as they influence learning, teaching, and curriculum content and organization.

Ed **516 Teaching Reading** (3 cr). Trends in teaching reading.

Ed **517 Advanced Elementary School Mathematics Education** (4 cr). Recently developed methods and materials in elementary school mathematics. Prereq: qualified for a standard elem certificate.

Ed **520 Elementary School Science and Social Studies** (3 cr). Methods and techniques; foundations of the unit as a means of instruction. Prereq: qualified for a standard elem certificate.

Ed **521 Elementary School Language Arts** (3 cr). Research in language arts and implications of data related to modern techniques of teaching.

Ed **523 Creative Arts and Creative Teaching** (3 cr). Creativity in children; art, music, socio-drama-creative writing. Prereq: qualified for a standard elem certificate.

Ed **525 Problems in Secondary Social Studies** (3 cr). Recent research and interpretation in social studies content, methods, and materials.

Ed **X528 Reading Instruction and Improvement** (3 cr). Not open for cr to students who have taken 436. Techniques of teaching reading in lower and intermediate grades; problems of remedial reading through 12th grade; materials, procedures, testing, and curriculum.

Ed **530 Education Law** (3 cr). Statutory and case materials; principles applicable to all states.

Ed **531 Elementary School Mathematics Education Research** (3 cr). Classic and contemporary research; experimental studies; rationale for position of specialist; objectives; coordination of services. Prereq: perm.

Ed **538 Student Teacher Supervision** (3 cr). Nature and scope of student teaching; role of cooperating agencies; role of participants; techniques; planning; evaluation.

Ed **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.

Ed **560 Research and Writing** (3 cr). Techniques of research in education.

Ed **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.

Ed **580 Seminar in Administration and Contemporary Issues** (3 cr). See Inter 580.

Ed **587-588 Modern Techniques of Science Instruction in Physics** (2 cr). See Phys 507-508.

Ed **590 History of Education** (3 cr). Development and influence of educational ideals and practices.

Ed **591 Administration of Personnel** (3 cr). Selection, placement, and evaluation of teachers; salaries and salary schedules; tenure; leave of absence; teacher organizations and related matters.

Ed **592 School-Community Relations** (3 cr). Interpreting the schools to the public; two-way flow of ideas between the school and community.

Ed **593 School Facilities Planning and Maintenance** (3 cr). Planning new school facilities and maintaining them; legal provisions involving financing; preliminary surveys of need; relationships with architects and contractors. Two field trips.

Ed **594 Theory in Educational Administration** (3 cr). Theories from psychological, sociological, and cultural points of view; their application to school administration; problem solving/decision making using case study approach. Prereq: 504.

Ed **595 Higher Education** (3 cr). College and university education in the U.S.; history, objectives, organization, finance, instructional methods, faculty, and student problems.

Ed **596 Collective Negotiations for Teachers** (3 cr). Collective negotiations in public education; recognition of bargaining agent; appropriate unit; administrative personnel and unit determination; representation and recognition procedures; scope and process of negotiations; bargaining power and impasse procedures; collective agreement; impact of collective negotiations.

Ed **597** (s) **Practicum** (cr arr). Graded on the basis of P or F. Prereq: perm.

Ed **598** (s) **Internship** (cr arr). Currently offered in public school teaching, college teaching, education administration, and higher education. Graded on the basis of P or F. Prereq: perm.

Ed **599** (s) **Research** (cr arr). Prereq: perm.

Ed **600 Doctoral Research and Dissertation** (cr arr).

Electrical Engineering

Joe E. Thomas, Dept. Chairman (214 Buchanan Engr. Lab.). Faculty: Everett M. Baily, John W. Dickinson, Earl E. Gray, Jack I. Hagen, George G. Hespelt, John Law, Gary K. Maki, Paul Mann, William R. Parish, James N. Peterson, Anthony L. Rigas, Elias K. Stefanakos, Emsley H. Stevens, Joe E. Thomas, Karen H. Van Houten.

EE **C010 Elementary Electrical Theory** (0 cr). Basic electrical theory and circuits for electrical employees based upon the background of high school algebra, geometry, and physics. Content equiv to 2 cr for fee purposes.

EE **200 Systems and Circuits I** (3 cr). Intro for engineering students; includes power and energy, circuit analysis, transient and steady-state behavior, resonant systems, and basic amplifying devices and circuits. Prereq: Math 180.

EE **201 Transients in Linear Systems** (4 cr). Analysis of transients in electrical and mechanical systems and circuits; Laplace transform theory and applications. Three lec and one 3-hr analog computation lab per wk (lab may be taken separately). Prereq: 200 or perm; coreq: Math 310.

EE **203 Systems and Circuits II** (4 cr). Continuation of 200 with emphasis on applications in electronics, magnetic circuits, energy conversion, feedback systems, and instrumentation. Three lec and one 3-hr lab per wk. Prereq: 200.

EE **204** (s) **Special Topics** (cr arr).

EE **240 Digital Computer Fundamentals** (3 cr). Algorithms; computer organization; number systems; concepts of machine language programming; data structures; subroutines; input-output operations; hands-on use of minicomputer stressed.

EE **292 Sophomore Seminar** (0 cr). Curriculum options, elective courses, preparations for graduate study, and current technical topics. Field trip may be required. Graded on the basis of P or F.

EE **305 Transmission Lines** (3 cr). Transmission of signals and power in distributed parameter circuits; characteristic impedances, attenuation, phase shift, reflections, and Smith charts. Prereq: 203.

EE **310 Electronics I** (5 cr). Intro to the application of electron devices in electrical networks; devices considered include diodes, bipolar and field effect transistors, and linear integrated circuits (op-amps); circuit configurations of interest include rectifiers and power supplies, small signal amplifiers, large signal amplifiers, and oscillators. Four lec and one 3-hr lab per wk. Prereq: 201, 203.

EE **314 Electronics and Control Systems** (4 cr). For nonmajors. Electronic devices and systems; linear control systems. Three lec and one 3-hr lab per wk. Prereq: 200.

EE **320 Electrical Machinery** (5 cr). Theory and application of electrical machinery and transformers. Four lec and one 3-hr lab per wk. Prereq: 201, 203, 330.

EE **324 Electrical Machinery** (3 cr). For nonmajors. Magnetic circuits and electromechanical energy converting systems; theory and characteristics of common AC and DC machinery. Two lec and one 3-hr lab per wk. Prereq: 200.

EE **330 Electromagnetic Theory** (4 cr). Vector calculus; electrostatics, electrodynamics; electromagnetic waves in isotropic media; Maxwell's equations; boundary value problems. Prereq: Math 310, Phys 221.

EE **401 Advanced Circuit Theory** (3 cr). Passive and active electrical networks; frequency response and complex frequency domain analysis, including pole-zero considerations, root locus, and sensitivity functions. Prereq: 201, 203, or perm.

EE **404** (s) **Special Topics** (cr arr).

EE **410 Electronics II** (3 cr). Physical electronics; diode and tran-

sistor models; noise mechanisms. Prereq: 310, 330, and Phys 360.

EE **411 Pulse and Digital Circuits** (3 cr). Electronic switching, timing, and pulse-shaping techniques; logic functions realization with diodes, transistors, and FETs. Prereq: 310.

EE **412 Pulse and Digital Networks** (3 cr). Pulse and digital circuit design in special-purpose electronic networks; integrated circuit modules in sequential networks. Two lec and one project-type lab per wk. Prereq: 411.

EE **420 Direct Energy Conversion** (3 cr). Direct energy conversion devices; solar cells, fuel cells, thermoelectric devices, MHD power generation, and thermionic devices. Prereq: 310, 330, and Phys 360.

EE **421 Power System Analysis** (3 cr). Problem recognition and basic analysis for the modern interconnected power system; energy supplies, voltage control, fault control, reliability, economics, and stability; intro to symmetrical components. Prereq: 320.

EE **422 Computer Methods in Power Systems** (3 cr). Analog and digital computers in the solution of load flow; short circuit and stability problems. Prereq: 421 or perm.

EE **435 Antennas and Microwave Devices** '3 cr). Antennas, antenna systems, waveguides and waveguide devices, klystrons, magnetrons, and traveling wave tubes. Two lec and one 3-hr lab per wk. Prereq: 330 or perm.

EE **440 Digital Systems Engineering** (3 cr). Same as InfSc 440. Concepts of Boolean algebra, logic components; combinational and sequential circuit analysis and synthesis; number systems. Prereq: jr standing.

EE **441 Computer Organization** (3 cr). Computer organization from functional to clock-pulse level; addressing, control, I/O, memory systems, and microprogramming. Prereq: 240, 440, or perm.

EE **445 Computer Programming Systems** (3 cr). Same as InfSc 445. System software; programming systems; machine language programming; I/O programming; assembly searching and sorting. Prereq: Math 205.

EE **446 System Modeling and Simulation** (3 cr). Same as InfSc 446. Computer simulation of physical and environmental systems; simulation of continuous and discrete systems; design and use of computer simulation models; probability concepts in simulation; optimization methods. Prereq: perm.

EE **447 Computer Operating Systems** (3 cr). Design and implementation of computer operating systems; batch processing, interactive processes, multiprogramming systems, and operating systems management of storage, file systems, and processors. Prereq: 445 or perm.

EE **R448 Advanced Assembler Language and Operating Systems** (3 cr). Same as InfSc R448. EXCP and CHANNEL programs, user-written SVC's, user-written program interrupt, I/O buffering techniques, channel end appendage, conditional coding, and Macro writing. Prereq: perm.

EE **449 Analog and Hybrid Computer** (2 cr). Analog, hybrid, and related digital techniques for the solution of differential equations; analog computer scaling methods; operational characteristics of analog components; analog-to-digital and digital-to-analog conversion, stability problems. Prereq: perm.

EE **452 Communications Systems** (4 cr). Linear (amplitude) modulation, exponential (frequency, phase) modulation, pulse-modulation techniques, noise, intro to information theory. Prereq: 203, 310.

EE **465 Control Engineering** (3 cr). For nonmajors. Continuous systems; transient response; frequency response; root locus; stability. Prereq: 200, plus familiarity with basic Laplace transforms.

EE **470 Control Systems** (4 cr). Continuous systems; frequency response; root locus; computer techniques; stability criteria; modern systems theory. Prereq: 201.

EE **480-481 Principles of Design** (3 cr). Computer-aided techniques, economics, marketing, reliability, and patents; projects require original design, working model, and report. Prereq: sr standing.

EE **486 Solid-State Electronics I** (3 cr). Modern microelectronics technology; thin film and thick film electronic circuits; lab projects in fabrication and testing. Coreq: 410.

EE **491-492 Senior Seminar** (0 cr). Technical topics, employment practice, and interviewing. One lec per wk; one 3-6 day field trip may be required. Graded on the basis of P or F.

EE **493 Thesis** (3 cr, max 6). Original investigation or dissertation upon some subject in electrical engineering. Prereq: sr standing and perm.

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 **ID502** (s) **Directed Study** (cr arr). Prereq: perm.

EE **504** (s) **Special Topics** (cr arr).

EE **505 Nonlinear Network Analysis** (3 cr). Approximation methods; describing functions; harmonic balance techniques; perturbation methods; numerical analysis methods using digital computers. Prereq: 200 and ability to use digital computation facilities.

EE **ID507 Computer-Aided Network Design** (3 cr). Digital computers in design of electrical networks; constrained and unconstrained optimization in network design. Prereq: perm.

EE **ID512 Active Network Synthesis** (3 cr). Active devices; classical network synthesis; two-port theory; amplifiers, filters, negative impedance converters. Prereq: 310.

EE **520 Advanced Electric 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: 320.

EE **ID521 Power System Planning and Resources** (3 cr). Major decision-making and economic factors in electric 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.

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: 421.

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: 421.

EE **530-531 Electromagnetic Field Theory I-II** (3 cr). EE 530: static field problems; Laplace and Poisson equations for charge configurations. EE 531: time-varying fields, radiation, propagation in anisotropic and layered media; vector and scaler potentials, retarded potentials; general relativity theory. Prereq: 330 for 530, 530 for 531. Equivalent to Phys 541-542.

EE **533 Antenna Theory** (3 cr). Linear, loop, and special antennas; synthesis and arrays; microwave reflectors and lenses. Prereq: 531 or perm.

EE **535 Mircrowave Circuits** (3 cr). Waveguide systems and components, oscillators and detectors; masers, parametric amplifiers, and other related methods. Prereq: 531 or perm.

EE **540 Switching and Finite Automata Theory** (3 cr). Same as InfSc 540. Finite-state automata; functional decomposition; threshold logic; synchronous and asynchronous sequential design; sequential circuit decomposition; fault detection and diagnosis in combinational and sequential machines. Prereq: 440.

EE **541 Design of Digital Computers and Computer Systems** (3 cr). Same as InfSc 541. Formal descriptions of computer systems; memory organizations; interrupt systems; microprogramming. Prereq: 440.

EE **542 Theoretical Models for Computation** (3 cr). Same as InfSc 542. Theoretical models with widest application to computer systems and programming; equivalence between abstract machines and corresponding formal grammars; formal languages and grammars; turing machines. Prereq: 541 or equiv.

EE **R543 Teleprocessing Systems Design** (3 cr). Same as InfSc R543. Components of a teleprocessing system: terminals, modems, the telecommunications network, the central site; types of teleprocessing: message switching, on-line inquiry systems, transaction-processing systems, remote batch systems, time-sharing systems, data-acquisition systems; software for teleprocessing systems; use of telecommunication packages.

EE **R544 Advanced Computer Programming Systems** (3 cr). Advanced systems software; generation of operating systems and I/O systems; advanced machine language programming.

EE **545 Algorithms and Information Structures** (3 cr). Same as InfSc 545. Basic alogirthms of computer science; implementation of alogrithms on the computer, lists, list-processing languages, and data structures. Prereq: 445 or equiv.

EE **R547 Applied Time Series Forecasting** (3 cr). Same as InfSc R547. Necessary theory for identifying and building stochastic and dynamic models for designing forecasting and control schemes; emphasis on problem solving; examples used to illustrate methods; students will participate in the solution of specimen problems.

EE **WS548 Hybrid Simulation Techniques** (3 cr). WSU 513. Design of hybrid computers and their application to complex systems. Prereq: 201, 440.

EE **549 Fault-Tolerant Digital Systems** (3 cr). Fault detection in combinational networks with techniques such as fault tables, Boolean difference, and SPOOF's; fault-tolerant designs of combinational and sequential networks; fail-safe designs for sequential circuits; fault-tolerant and fail-safe computing systems. Prereq: 440 or equiv.

EE **ID550 Communication Theory I** (3 cr). Quantum receiver principles; channel constraints, binary communication techniques; fading and scattering media, diversity techniques; otpimum reception; phase-locked loops. Prereq: perm.

EE **ID551 Communication Theory II** (3 cr). Hypothesis testing; optimum detection of signal in noise; sequential detection; maximum likelihood estimation; spatial processing; data reduction techniques. Prereq: perm.

EE **554-555 Information Theory I-II** (3 cr). Same as InfSc 554-555. EE 554: information and uncertainty measure; channel capacity; reliable transmission through unreliable channels. EE 555: error-detecting/correcting code via linear codes, polynomial codes, Bose-Chaudhuri codes, codes for arithmetic operations; design of encoders and decoders. Prereq: perm.

EE **572 Modern Control Theory** (3 cr). Modern control concepts, controlability, observability, and stability; relation between modern control theory and classical control theory. Prereq: 470.

EE **574 Optimal Control Theory I** (3 cr). Classifical theory of min-max; calculus of variations; Lagrange problem; Stochastic processes; Wiener-Hopf and Kalman-Bucy filtering; linear programming. Prereq: 572.

EE **575 Optimal Control Theory II** (3 cr). Search techniques and nonlinear programming; dynamic programming; maximum principle. Prereq: 572.

EE **WS581-WS582 Wave Propagation I-II** (3 cr). WSU 528-529. EE 581: theory of radio wave propagation in a magnetoionic medium; application to communications problems; plasma waves; atmospheric waves. EE 582: phenomena occurring within the solar-terrestrial environment; dynamics of and wave propagation in the magnetosphere.

EE **WS583 Artificial Intelligence and Heuristic Programming** (3 cr). WSU CptS 501. Normative and descriptive models of intelligent processes; programming languages used to specify these models.

EE **WS584 Modeling and Simulation of Ecological Systems** (3 cr). WSU CptS 510.

EE **WS585 Advanced Topics in Information Processing** (3 cr, max 6). WSU CptS 520.

EE **ID586 Solid-State Electronics II** (1-3 cr, max 6). Offered in one-credit modules. Typical modules are: advanced treatment of bipolar transistors and other junction devices, metal-semiconductor devices, field-effect transistors, optoelectronic devices, Gunn oscillators and other bulk-effect devices, properties of semiconductors, and semiconductor statistics and noise mechanisms. Prereq: 410, 486, or perm.

EE **588 Equilibrium Tensor Properties of Solids** (3 cr). Tensor analysis; crystal symmetry and symmetry transformations; dielectric, magnetic, and elastic properties, interaction effects; piezoelectricity; optical properties; piezo-optical effects. Prereq: perm.

EE **589 Transport Phenomena in Solids** (3 cr). Electrical and thermal conductivities, diffusivity; thermoelectric, electrodiffusive, and thermodiffusive conductivities; thermodynamics of irreversible processes; Hall, Nerst, Ettinghausen, and Leduc-Righi effects; piezoresistance and piezogalvanomagnetic effects. Prereq: perm.

EE **599** (s) **Research** (cr arr). Prereq: perm.

EE **600 Doctoral Research and Dissertation** (cr arr).

Engineering Technology/Electrical Engineering

ET/EE **130 Basic Electricity** (4 cr). Same as IEd 130. Technical theory and skills in electrical testing procedures; preparation of instructional prog for jr high schools.

ET/EE **131 Basic Electronics** (4 cr). Same as IEd 131. Continuation of ET/EE 130. Electron tube and semiconductor circuits. Prereq: 130.

ET/EE **R135 Electrical Systems** (3 cr). Same as IEd R135. Fundamentals of AC/DC circuits and components, motors, transformers, and switchgear; national electrical code wiring requirements.

ET/EE **R215 Electronic Components** (3 cr). Same as IEd R214. Physical and electrical characteristics of electronic devices; emphasis on solid state devices; includes discrete and integrated circuit components.

ET/EE **R235 Communication Electronics** (4 cr). Same as IEd R235. Application of electronic circuits to communications equipment; radio receivers and transmitters; technical radio and TV for avocational use. Prereq: 130-131.

ET/EE **R240 Electronics and Control Systems** (3 cr). Same as IEd R240. Complex frequency domain; application of electronic devices and systems; intro to control theory.

ET/EE **R245 Minicomputer Fundamentals** (3 cr). Same as IEd R245. Machine language programming, use of minicomputer software, assembler programming, real-time programming, interrupt facilities, system allocation.

ET/EE **R320 Electronic Drafting** (3 cr). Same as IEd R320. Drafting philosophy as related to instrumentation and control circuits; design, layout, and fabrication of printed circuit boards; drafting as related to circuit fabrication.

ET/EE **R330 Industrial Instrumentation I** (3 cr). Same as IEd R330. Utilization of electronic circuits and devices for process parameter measurements.

ET/EE **R331 Industrial Instrumentation II** (3 cr). Same as IEd R331. Methods of process control from digital and analog signals; investigation of computer control concepts.

ET/EE **R333 Computer Electronics** (3 cr). Same as IEd R333. Logic of circuits, basic circuits used in computers, and interfacing hardware for computer peripherals.

Engineering (General)

Roland O. Byers, Chairman (324 Janssen Engr. Bldg.). Faculty: Roland O. Byers, Charles K. Nelson, Robert E. Rinker, Weldon R. Tovey, Robert L. Turner.

Engr **101 Engineering Graphics** (2 cr). Visualization of points, lines, planes, and solids in space; sketching, orthographic projection, pictorial representation, charts and graphs, and lettering; some drafting techniques and methods. Also offered by correspondence study.

Engr **102 Engineering Graphics** (2 cr). Descriptive geometry; technique of solving problems involving points, lines, planes, and surfaces in space; application to graphical problems in engineer-

ing and other fields. Also offered by correspondence study. Prereq: 101 or equiv.

Engr **120-121 Engineering Analysis and Design I-II** (2 cr). Open to nonengineering students by perm. Basic concepts for beginning engineering students. Engineering method of problem solving and the design process.

Engr **131 Digital Computer Programming** (1-2 cr). Same as InfSc 131. Principles and logic; flow charts, one- and two-dimensional arrays, function and subroutine subprograms, application to problem solving. Also offered by correspondence study.

Engr **200** (s) **Seminar** (cr arr). Prereq: perm.

Engr **203** (s) **Workshop** (cr arr). Prereq: perm.

Engr **234 Advanced Fortran Programming** (2 cr). Same as InfSc 234. Advanced fortran statements, complex and logical variables, advanced I/O, disk and tape use, numeric and nonnumeric algorithms. Prereq: 131.

Engr **294 The Man-Made World** (4 cr). For nonengineering students. Intro to technology through the development of such concepts as decision making, optimization, systems, and uses of the computer; real-life investigations based on "The Man-Made World" text. Three lec and one 3-hr lab per wk. Prereq: high school algebra.

Engr **299** (s) **Directed Study** (cr arr). Prereq: perm.

Engr **R314 Advanced Engineering Graphics** (2 cr). Industrial drafting practices; curve plotting; creative problems; sketching; production illustrations; graphical mathematics; nomography, graphical integration, and differentiation. Prereq: 101.

Engr **394 Technology and Societal Decisions** (3 cr). Same as Inter 394. Basic treatment of the engineering approach to decision making in society, including the evaluation of alternatives based upon economic, social, and human values.

Engr **396 Society and Engineering Decisions** (3 cr). Primarily for engineers. Commercial, political, sociological, and ecological considerations relevant to technological decisions of the past, present, and future.

Engr **400** (s) **Seminar** (cr arr). Prereq: perm.

Engr **403** (s) **Workshop** (cr arr). Prereq: perm.

Engr **407 Professional Management for Engineers** (3 cr). Consideration of analytical, quantitative, and human functions in managerial sciences with emphasis on socioeconomic synthesis.

Engr **411 Engineering Fundamentals** (3 cr). May not be used toward an engineering degree. Review of basic engineering and science material covered in undergraduate engineering curricula; selected areas of mathematics, chemistry, physics, mechanics, thermodynamics, electricity and electronics, and engineering economics. Prereq: engineering degree or perm.

Engr **495 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

Engr **N496-N497-N498 Engineering Concepts for High School Teachers I-II-III** (2 cr; 3 cr; 2 cr). Based largely on the Engineering Concepts Curriculum Project (ECCP), The Man-Made World, Parts I-II-III. Seven to eleven hrs of lec and lab per wk for six wks during summer sessions. Prereq: perm.

Engineering Science

George L. Bloomsburg, Chairman (224 Janssen Engr. Bldg.). Faculty: George L. Bloomsburg, Donald F. Haber, Wayne R. Hager, Ronald G. Patterson, Jay J. Scheldorf, Ping-Tsoong Sun.

ES **210 Statics** (3 cr). Addition and resolution of forces; vector algebra; graphical methods; equilibrium; free body diagrams, trusses; frames; friction, centroids and moments of inertia; fluid statics; virtual work. Also offered by correspondence study. Coreq: Math 190.

ES **211 Introduction to Mechanics** (4 cr). Resolution of forces; vector analysis; equilibrium; free body diagrams; centroids and moments of ineritia; kinematics, kinetics, work energy, and momentum methods for systems of particles. Three lec and one 2-hr lab per wk. Prereq: Math 190.

ES **220 Dynamics** (3 cr). Particle and rigid body kinematics and kinetics, work/energy, impulse/momentum concepts, combined scalar/vector approach. Also offered by correspondence study. Prereq: 211 or equiv.

ES **221 Dynamics of Rigid Bodies** (2 cr). Kinematics, kinetics, work energy, and momentum methods for rigid bodies. Prereq: 211; coreq: Math 310.

ES **301 Engineering Statistics** (3 cr). Same as InfSc 301. Theory and applications of probability and statistics to the design and analysis of engineering problems; statistical distributions, experiments of comparison, regression, correlation, analysis of variance, and design of experiments.

ES **310 Engineering Materials Science** (3 cr). Structure of materials; mechanical, electrical, chemical, and thermal properties of materials. Prereq: Chem 114, Phys 221.

ES **320 Fluid Mechanics** (3 cr). 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. Also offered by correspondence study. Prereq: 211, Math 200.

ES **321 Thermodynamics and Heat Transfer** (3 cr). First and second laws of thermodynamics; thermodynamic processes; thermodynamic properties of fluids; flow processes; conversion of heat into work; refrigeration; conduction and radiation. Prereq: 211, Math 200.

ES **340 Mechanics of Materials** (3 cr). Elasticity, strength, and modes of failure of engineering materials; theory of stresses and strains for ties, shafts, beams, and columns. Also offered by correspondence study. Prereq: 211, Math 200.

ES **402 Applied Numerical Methods** (3 cr). Same as InfSc 402. Approximate and numerical methods for solution of boundary value, initial value, and eigen value systems, with practical applications, errors, improvement of accuracy, and numerical and matrix techniques for computation by digital computer. Prereq: Math 310.

ES **406 Design and Analysis of Engineering Experiments** (3 cr). Experiments of evaluation and comparison, accelerated and factorial experiments, sequential, nonparametric and fatigue experiments, and analysis of data with applications to computers, propulsion, automatic control systems, air and water pollution. Prereq: college-level statistics course.

ES **490 Systems Analysis of Environmental Problems I** (3 cr). Modeling and simulation of environmental systems; systems analysis and optimization techniques especially applied to environmental problems. Prereq: Math 310.

ES **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm of dept.

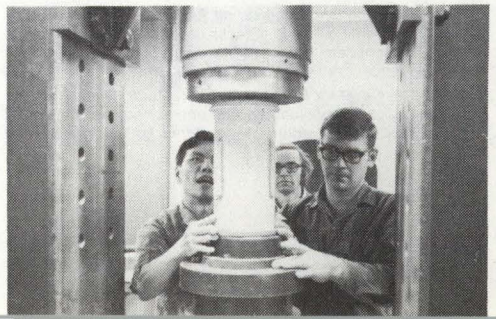
ES **499** (s) **Directed Study** (cr arr). Prereq: perm.

ES **504** (s) **Special Topics** (cr arr).

ES **R505 Engineering Statistics** (1-3 cr). Same as InfSc R505. Theory of probability, statistics, and stochastic processes applied to selected areas of engineering. Prereq: 301 or perm.

ES **540 Continuum Mechanics** (3 cr). Stress and deformation of continua using tensor analysis; relationship between stress, strain, and strain rate in fluids and solids; applications. Prereq: perm.

ES **590 Systems Analysis of Environmental Problems II** (3 cr). Systems analysis of environmental problems and processes including linear, dynamic, and geometric programming; systems modeling, stochastic systems, and other optimization techniques. Prereq: perm.



English

James S. Malek, Dept. Chairman (200 Faculty Office Complex-East). Faculty: Douglas Q. Adams, Henry M. Alley, G. Michael Armstrong, David S. Barber, Jack L. Davis, Richard J. Dozier, Katheryn M. Foriyes, Richard G. Hannaford, Joseph E. Knight, Gene H. Krupa, James S. Malek, Max H. Massey, Ronald E. McFarland, Maryann E. McKie, Barbara R. Meldrum, R. Patrick Murphy, Kurt O. Olsson, Teoman Sipahigil, Ruth E. Stokes, Leo F. Storm, Charles R. Stratton, Stephen L. Tanner, Leland M. Thiel, Mason Tung, Roger P. Wallins, Leslie Wardenaar, J. Gary Williams.

ADVANCED PLACEMENT: Courses in this subject field that are vertical in content are: 103-104.

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. Eng 103 and 104 are prerequisites to all upper-division courses. A transfer student who lacks 103 or 104, or both, may take either or both for credit even though he or she has already taken a literature course for which 103 or 104 are prerequisite here.

Eng **103 Basic Skills for Writing** (3 cr). Intensive study of fundamentals of English syntax and its relationships to conventions of usage and punctuation; basic rhetorical concepts about words, sentences, and paragraphs. Students may be asked to do additional supervised work in vocabulary improvement or spelling or both. Graded on the basis of P (pass) or N (repeat).

Eng **104 Essay Writing** (3 cr). Training in writing clear, concise, and vigorous prose intended to inform and convince. Graded on the basis of P (pass) or N (repeat). Prereq: 103 or equiv.

Eng **111-112 Literature of Western Civilization** (3 cr). Masterpieces reflecting the development of Western thought and culture. Eng 111: Classical Greece to the Renaissance. Eng 112: 17th century to the present. May be taken with 103.

Eng **126 Literature and Film** (2 cr). Study of film art through related literary works.

Eng **150 Expository Prose Analysis** (3 cr). Emphasis on persistent problems of diction, syntax, and clear expression in student prose exposition. Prereq: 104.

Eng **175 Introduction to Literature** (3 cr). Basic course in literary genres (novel, drama, poetry) to provide the general student or the beginning English major with the terminology and standard techniques of literary explication. May be taken with 103.

Eng **201 The Research Paper** (2 cr). Intro to basic skills common to most academic disciplines in gathering data, using recognized methods of documentation and conventions of presentation; supervised writing of a research paper. Prereq: 104 or equiv.

Eng **267-268 Survey of English Literature** (3 cr). Eng 267: Beowulf to Samuel Johnson. Eng 268: Robert Burns to contemporary writers. Also offered by correspondence study. Prereq: 104.

Eng **277-278 Survey of American Literature** (3 cr). Eng 277: colonial beginnings to Melville. Eng 278: Whitman to contemporary writers. Prereq: 104.

Eng **291 Creative Writing: Poetry** (3 cr). Intro to techniques of writing poetry. Graded on the basis of P or F.

Eng **292 Creative Writing: Fiction** (3 cr). Intro to techniques of writing fiction. Graded on the basis of P or F.

Eng **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.

Eng **313 Business Writing** (3 cr). Principles of clear writing related to business style; correspondence and reports; form, content, and style. Prereq: 104 or equiv and jr standing, or perm.

Eng **317 Technical and Engineering Report Writing** (3 cr). Principles of clear writing related to technical style; problems such as technical description, proposals, formal reports, and technical correspondence. Prereq: 104 or equiv and jr standing, or perm.

Eng **321 The Novel for Nonmajors** (3 cr). Major novels from the 18th century to the present; special emphasis upon the variety and kinds of novels written. Also offered by correspondence study.

Eng **325 Contemporary Literature for Nonmajors** (3 cr). Current poetry and prose; emphasis on American authors.

Eng **327 Black Literature** (3 cr). Same as AfrAm 327. Major works of American Black writers; emphasis on the 20th century.

Eng **330 American Indian Literature** (3 cr). Recent poetry and prose written by and about the American Indians.

Eng **335 Shakespeare for Nonmajors** (3 cr). Primarily for students not majoring in English literature. Intro to Shakespeare's major plays.

Eng **350 Backgrounds of Literature** (3 cr). Survey of those areas of tradition which underlie the art/literature of the Western World: the Bible, the mythology of classical antiquity and Northern Europe, and the medieval romance.

Eng **375 The Bible as Literature** (3 cr). Literary qualities of the Bible.

Eng **387 Modern European Literature** (3 cr). Readings in translation of the chief European writers; emphasis on the late 19th and 20th centuries and including drama.

Eng **400** (s) **Seminar** (cr arr). Prereq: perm.

Eng **401 Advanced Composition** (3 cr). Model class for prospective teachers of English; equal emphasis on rhetorical theory and the teaching of composition.

Eng **402 Composition and Criticism** (3 cr). Survey of basic critical approaches which illuminate student experience as expressed in secondary-level literature; designed to aid in the integration of literature and composition.

Eng **404** (s) **Special Topics** (cr arr).

Eng **421 Development of the English Novel** (3 cr). Major writers from the beginnings to Scott.

Eng **422 The Nineteenth-Century English Novel** (3 cr). Dickens to Hardy.

Eng **425 Irish Literary Renaissance** (3 cr). Literature of Ireland after 1880, especially Yeats, Joyce, and Synge.

Eng **426 Modern Poetry** (3 cr).

Eng **427 American Fiction in the Twentieth Century** (3 cr).

Eng **428 British Fiction in the Twentieth Century** (3 cr).

Eng **433 Chaucer** (3 cr). Intro to Chaucer's poetical works.

Eng **434 Middle English Literature** (3 cr). Middle English language and literature to 1500, exclusive of the works of Chaucer and of medieval drama.

Eng **435 Shakespeare** (3 cr). Introductory course, designed mainly for English majors: background and study of selected plays representative of Shakespeare's achievement in mode and kind.

Eng **436 Advanced Shakespeare** (3 cr). Designed mainly for English majors: intensive study of a number of plays grouped according to mode, kind, theme, or the dramatist's development. Prereq: 435 or perm.

Eng **437 English Drama to 1642** (3 cr). Liturgical beginnings through the Age of Elizabeth, excluding Shakespeare, and concluding with the close of the theatres by the English Civil War; emphasis upon Marlowe, Jonson, and Webster.

Eng **438 English Drama, 1660-1800** (3 cr). Heroic play and tragedy; sentimental drama; comedy of manners.

Eng **439 Modern English and American Drama** (3 cr). Plays of the chief 20th-century English and American dramatists.

Eng **441 Introduction to the Study of Language** (3 cr). 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 English.

Eng **442 Introduction to Transformational Grammar** (3 cr). Structure and processes of English syntax via transformational/generative grammar; transformational grammar compared with other approaches including traditional; considers application of transformational/generative grammar to teaching of English. Prereq or coreq: 441 or perm.

Eng **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: 441 or perm.

Eng **445 Literature for Young People** (3 cr). Primarily for students working for teacher or library certification. Reading and appraisal of literature appropriate to the needs, interests, and abilities of young people. Also offered by correspondence study.

Eng **451 Sixteenth-Century Poetry and Prose** (3 cr). Major authors of the period with emphasis on Spenser.

Eng **452 Milton** (3 cr). Major prose and poetry of Milton.

Eng **453 Seventeenth-Century Poetry and Prose** (3 cr). Major authors of the period (excluding Milton) with emphasis on Bacon, Browne, Burton, Donne, Herbert, Herrick, and Marvell.

Eng **456 Restoration and Eighteenth Century** (3 cr). Neoclassical poetry and prose from Dryden to Johnson.

Eng **465 The Romantic Period** (3 cr). Poetry and prose of the early 19th century with emphasis on Wordsworth, Coleridge, Shelley, Keats, and Byron.

Eng **466 The Victorian Period** (3 cr). Poetry and prose with emphasis on Tennyson, Browning, Arnold, Carlyle, Newman, and J. S. Mill.

Eng **470 American Literature to 1830** (3 cr). Colonial period to the early republic with emphasis on Bradford, Taylor, Edwards, Franklin, Crevecoeur, Cooper, and Irving.

Eng **471 Poe, Hawthorne, and Melville** (3 cr). Major works and genres of three authors to delineate their ethos and artistry in relation to the American Renaissance. Prereq: 277.

Eng **472 Emerson, Thoreau, and Whitman** (3 cr). Major works and genres of three authors to delineate their ethos and artistry in relation to the American Renaissance. Prereq: 277.

Eng **473 Literature of the American West** (3 cr). Writings that reflect the growth of the western United States from frontier days to the present.

Eng **474 Growth of American Realism, 1865-1914** (3 cr). Prereq: 278.

Eng **476 American Folklore** (3 cr). Forms, including ballads and folksongs, known in the U.S.; their collection and study with special attention to their appearance in American literature.

Eng **482-483** (s) **Major Authors** (3 cr). Comprehensive study of the works of a single author. See the time schedule for author.

Eng **491 Advanced Creative Writing: Poetry** (3 cr). Continuation of 291. Advanced techniques of writing poetry. Graded on the basis of P or F. Prereq: 291 and perm.

Eng **492 Advanced Creative Writing: Fiction** (3 cr). Continuation of 292. Advanced techniques of writing fiction. Graded on the basis of P or F. Prereq: 292 and perm.

Eng **494 Methods of Literary Criticism** (3 cr). Intro to major principles and methods of literary analysis; practice in applying critical methods to selected poems, fiction, and drama.

Eng **495 Literary Criticism** (3 cr). History of literary criticism from Plato to the present.

Eng **496 History of the English Language** (3 cr). Evolution of the English language from Proto-Germanic to American English.

Eng **499** (s) **Directed Study** (1-3 cr, max 3). Prereq: perm.

Eng **500 Master's Research and Thesis** (cr arr). Graded on the basis of P or F.

Eng **501** (s) **Seminar** (cr arr). Prereq: perm.

Eng **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 on the basis of P or F. Prereq: perm.

Eng **503 Problems and Methods of Literary Study** (3 cr).

Eng **504** (s) **Special Topics** (cr arr).

Eng **505** (s) **Workshop** (cr arr). May be graded on the basis of P or F. Prereq: perm.

Eng **506 Language and Teaching of Writing** (3 cr). Linguistic, rhetorical, stylistic, and pedagogical concepts essential to teaching college-level writing.

Eng **507** (s) **Studies in the English Language** (3 cr, max 9). Normally offered in Old English, Middle English, and Early and Late Modern English. Prereq: 441, 496, or perm.

Eng **510** (s) **Studies in Linguistics** (3 cr, max 12) (548). Studies in such linguistic topics 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: 441, 442, 443, 496, 506, or perm.

Eng **511** (s) **Studies in Literary Criticism** (3 cr, max 12). Studies in the history of criticism and in various schools of literary criticism. Prereq: 495 or perm.

Eng **512** (s) **Studies in Literary Theory** (3 cr, max 12). Studies in various genres (poetry, drama, fiction), forms and modes (tragedy, comedy, satire).

Eng **520** (s) **Studies in Medieval Literature** (3 cr, max 12). Normally offered in period survey, genre studies, and major author(s).

Eng **530** (s) **Studies in Renaissance and 17th-Century British Literature** (3 cr, max 12) (535). Normally offered in period survey, genre studies, and major author(s).

Eng **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).

Eng **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).

Eng **560** (s) **Studies in American Literature Before 1900** (3 cr, max 12) (536). Normally offered in period survey, genre studies, and major author(s).

Eng **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).

Eng **599** (s) **Research** (cr arr). Prereq: perm.

Entomology

Arthur R. Gittins, Dept. Head (242 Iddings Wing, Ag. Sci. Bldg.). Faculty: Craig R. Baird, William F. Barr, Guy W. Bishop, Merlyn A. Brusven, Gene P. Carpenter, Arthur R. Gittins, Hugh W. Homan, Lawrence E. O'Keeffe, Larry E. Sandvol, John A. Schenk, Donald R. Scott, Howard W. Smith, Ronald W. Stark, Robert L. Stoltz, Norman D. Waters.

Ent **X121 Applied Entomology** (3 cr). Identification, life history, and control of insect pests in the Pacific Northwest; for students interested in the biology and control of pest insects.

Ent **211 General Entomology** (4 cr). Structure, development, classification, habits, and ecology of insects. Two lec and two 2-hr labs per wk.

Ent **314 Entomology for Biology Teachers** (3 cr). Use of insects in illustrating biological principles; techniques and methodology in rearing, preparing, and studying insects. Two lec and one demdisc per wk. Prereq: perm.

Ent **322 Economic Entomology** (3 cr). Insect relationships to man and his environment; identification, biology, and control. Two lec and one 2-hr lab per wk.

Ent **342 Insect Identification** (4 cr). Survey of major families; collecting and preservation techniques. Two lec and two 2-hr labs per wk; two 1-day field trips. Prereq: 211.

Ent **400** (s) **Seminar** (cr arr). Prereq: perm.

Ent **438 Pesticides in the Environment** (2 cr). Same as PlSc 438 and Inter 438. Role of herbicides, fungicides, bactericides, nematocides, insecticides, and rodenticides in pollution, with methods of detection, control, and prevention.

Ent **442 Immature Insects** (3 cr). Alt/yrs 76-77. Structure, behavior, and identification of immature insects. One lec and two 2-hr labs per wk. Prereq: 211.

Ent **ID447 Plant Resistance to Insects** (2 cr). Alt/yrs 76-77. Mechanisms of plant resistance; factors affecting expression or permanence of resistance; insect-plant associations. Prereq: perm.

Ent **WS448 Medical Entomology** (4 cr). Insects and related arthropods in relation to human and animal health; means of control. Prereq: adv standing in entomology.

Ent **WS449 Biological and Integrated Control** (2 cr). Alt/yrs 77-78. Use of natural organisms for control of insect and weed pests; development of integrated programs. Prereq: perm.

Ent **WS451 Insect Physiology** (4 cr). Alt/yrs 77-78. Mechanisms of vital processes in insects; the organ, cellular, subcellular, chemical, and physical levels. Prereq: courses in organic chemistry and cell physiology.

Ent **467 Forest Entomology** (3 cr). Same as FWR 467. Influence of insects on forestry practices and on the forest ecosystem; identification, ecology, survey, and control of major forest insect pests. Two lec and one 2-hr lab per wk.

Ent **ID472 Aquatic Entomology** (1 cr). Alt/yrs 76-77. Identification and biology of insects associated with aquatic and subaquatic environments. Prereq: perm.

Ent **ID474 Aquatic Entomology Laboratory** (2 cr). Alt/yrs 76-77. Lab to accompany ID472. Two 3-hr labs per wk; two 1-day field trips. Coreq: ID472.

Ent **484 Insect Anatomy and Physiology** (4 cr). Alt/yrs 77-78. Organ systems of insects and their functions. Three lec and one 3-hr lab per wk. Prereq: 211.

Ent **ID498 Insect Morphogenesis** (3 cr). Alt/yrs 77-78. Ontogenetic development; embryogenesis, metamorphosis, morphology, and phylogeny of insects. Prereq: adv standing in entomology.

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 **ID513 Entomological Research Methods** (3 cr). Procedures and techniques of studying insects; measuring physical environmental factors.

Ent **517 Entomological Literature** (2 cr). Survey of literature and bibliographic aids.

Ent **521 Principles of Insect Control** (3 cr). Alt/yrs 76-77. Principles, theory, and methodology of regulating populations of detrimental insects.

Ent **ID541 Insect Ecology** (3 cr). Alt/yrs 76-77. Factors affecting the distribution, abundance, and behavior of insects; population dynamics. Two lec and one 3-hr lab per wk; two 1-day field trips. Prereq: 211 and general ecology or perm.

Ent **WS542 Insect Behavior** (4 cr). Alt/yrs 77-78. Behavior of insects; orientation to environmental conditions. Three lec and one 3-hr lab per wk.

Ent **WS543 Pest Management** (3 cr). Alt/yrs 77-78. Concepts and methods of pest management; population and economic analysis; modeling and simulation; strategic management decision-making. Prereq: perm.

Ent **544 Systematic Entomology** (3 cr). Principles and concepts of insect classification; taxonomic procedure and rules of zoological nomenclature.

Ent **WS546 Pesticide Chemistry and Toxicology** (4 cr). Alt/yrs 76-77. WSU 545. Mode of action of insecticides at the neural membrane and molecular levels; mechanisms of selectivity and resistance to poisons. Prereq: organic chemistry of perm.

Ent **WS551 Insect Biochemistry** (3 cr). Alt/yrs 76-77. Current knowledge of insect chemistry. Prereq: course in biochemistry.

Ent **569 Advanced Forest Entomology** (3 cr). Alt/yrs 77-78. Same as FWR 569. Biological and economic evaluation and applied control of forest insect populations; population phenomena. Two lec and one 2-hr lab per wk; two 1-day field trips to university forest. Prereq: 467 or perm.

Ent **ID582 Insect Physiological Ecology** (4 cr). Alt/yrs 76-77. Interrelationships of environment with metabolic functions, structure, and biology of insects. Three lec and one 3-hr lab per wk. Prereq: 484 or perm.

Ent **597** (s) **Practicum** (cr arr). Prereq: perm.

Ent **598** (s) **Internship** (cr arr). Prereq: perm.

Ent **599** (s) **Research** (cr arr). Prereq: perm.

Ent **600 Doctoral Research and Dissertation** (cr arr).

Foreign Languages and Literatures

Galen O. Rowe, Dept. Chairman (314 Admin. Bldg.). Faculty: M. Audrey Aaron (Spanish), Frances Chiles (Spanish), Alfred W. Jensen (Spanish), Demetrius J. Koubourlis (Russian), Paul R. Kuetner (French), Elisabeth Lapeyre (French), Cecelia E. Luschnig (Classics), Marny S. Menkes (Classics), Michael W. Moody (Spanish), James R. Reece (German), Eugene E. Reed (German), Alan Rose (French), Galen O. Rowe (Classics), Georgia Shurr (French), John B. Sita (Spanish and Italian), Elizabeth E. Stevenson (French), John H. Sullivan (German), Phyllis M. Van Horn (English as a Second Language).

ADVANCED PLACEMENT: Courses in this subject field that are vertical in content are: FL/FR 101-102-201-202; FL/GN 121-122-221-222; FL/GK 341-342-441-442; FL/IT 151-152-251-252; FL/LA 161-162-261-262; FL/RU 171-172-271-272; FL/SP 181-182-281-282. In appropriate cases, with the approval of the chairman 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: FL/FR 301-302; FL/GN 321-322; FL/LA 361-362; FL/RU 371-372; FL/SP 381-382.

PREREQUISITE: Prerequisite for upper-division language courses, except those in Greek, is the appropriate intermediate course or equiv.

COURSES OFFERED IN ENGLISH

No prereq or foreign language experience required. May be used to fulfill the L & S humanities requirement.

FL/EN **100 English as a Second Language** (3 cr, max 6). Limited to students whose native language is other than English. Normally scheduled on the basis of three lec per wk; however, additional lec, lab, and/or tutorial sessions may be scheduled and required. Prereq: perm of dept.

FL/EN **200** (s) **Seminar** (cr arr). Prereq: perm.

FL/EN **204** (s) **Special Topics** (cr arr).

FL/EN **211-212 Classical Mythology** (2 cr). Intro to classical myths and legends and their survival in western literature and art.

FL/EN **243-244 English Word Origins** (2 cr). Fundamental Latin and Greek words used in the humanities and natural sciences; emphasis on terminology of fields in which students are especially interested; knowledge of Greek or Latin is not required.

FL/EN **299** (s) **Directed Study** (cr arr). Prereq: perm.

FL/EN **313-314 Modern French Literature in Translation** (3 cr). Does not count toward a major or minor in French. Major modern French authors in English translation; knowledge of French is not required.

FL/EN **323-324 German Literature in Translation** (3 cr). Does not count toward a major or minor in German. Knowledge of German is not required.

FL/EN **363-364 Survey of Classical Origins** (3 cr). FL/EN 363: Greece. FL/EN 364: Rome. Literature, history, philosophy, archaeology, and art of Greece and Rome; discussions and writing.

FL/EN **373-374 Russian Literature in Translation** (3 cr). Close examination of works of a selected 20th-century author; comparison of soviet and western cultures. Knowledge of Russian is not required.

FL/EN **393-394 Masterpieces of Spanish Literature in Translation** (3 cr). Does not count toward a major or minor in Spanish. Knowledge of Spanish is not required.

FL/EN **400** (s) **Seminar** (cr arr). Prereq: perm.

FL/EN **449 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm of dept.

FL/EN **498** (s) **Proseminar** (1-3 cr, max 12). May be graded on the basis of P or F when this grading system is uniform for all students in the class. Prereq: perm.

FL/EN **499** (s) **Directed Study** (cr arr). Prereq: perm.

FRENCH

Note: FL/FR 101, 102, 201, and 202 may be taken during a single term if the student is a resident of the French Language House.

FL/FR **101-102 Elementary French** (4 cr). Pronunciation, vocabulary, reading, spoken French, and functional grammar.

FL/FR **104 Elementary French Reviewed** (4 cr). Not open for cr to students who have taken 101 or equiv in college. Review of subject matter covered in FL/FR 101-102. Prereq: 2 yrs of French in high school or perm.

FL/FR **105-106 French for Graduate Students** (0 cr). Preparation for the doctoral reading examination. Two 1-hr lec per wk. Graded on the basis of P or F.

FL/FR **200** (s) **Seminar** (cr arr). Prereq: perm.

FL/FR **201-202 Intermediate French** (4 cr). Reading, grammar review, speaking, and writing. Prereq: FL/FR 102.

FL/FR **204** (s) **Special Topics** (cr arr).

FL/FR **299** (s) **Directed Study** (cr arr). Prereq: perm.

FL/FR **301-302 Advanced French Grammar and Composition** (3 cr). Recommended for prospective teachers of French.

FL/FR **303-304 French Culture and Institutions** (3 cr).

FL/FR **305-306 Survey of French Literature** (3 cr). Middle Ages to the present.

FL/FR **400** (s) **Seminar** (cr arr). Prereq: perm.

FL/FR **401-402 Nineteenth-Century French Literature** (3 cr).

FL/FR **403-404 Seventeenth-Century French Literature** (3 cr).

FL/FR **405-406 Eighteenth-Century French Literature** (3 cr).

FL/FR **407-408 Contemporary French Literature** (3 cr).

FL/FR **409-410 French Phonetics** (1-3 cr, max 6). Phonetic description and phonemic analysis; stress, its nature and place; intonation patterns in conversation; reading of prose and poetry.

FL/FR **411-412 French Composition and Conversation** (2 cr).

FL/FR **413-414 French for Teachers** (2 cr). Language and culture; pronunciation and diction.

FL/FR **415** (s) **Special Topics** (cr arr).

FL/FR **449 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm of dept.

FL/FR **498** (s) **Proseminar** (1-3 cr, max 12). May be graded on the basis of P or F when this grading system is uniform for all students in the class. Prereq: perm.

FL/FR **499** (s) **Directed Study** (cr arr). Prereq: perm.

FL/FR **500 Master's Research and Thesis** (cr arr).

FL/FR **501** (s) **Seminar** (cr arr). Prereq: perm.

FL/FR **502** (s) **Directed Study** (cr arr). Prereq: perm.

FL/FR **503 History of the French Language** (3 cr).

FL/FR **504 Explications Francaises** (3 cr).

FL/FR **505 Seventeenth-Century French Drama** (3 cr).

FL/FR **506** (s) **Workshop** (cr arr). Prereq: perm.

FL/FR **507** (s) **Special Topics** (cr arr).

FL/FR **597** (s) **Practicum** (cr arr). Prereq: perm.

FL/FR **598** (s) **Internship** (cr arr). Prereq: perm.

FL/FR **599** (s) **Research** (cr arr). Prereq: perm.

GERMAN

FL/GN **121-122 Elementary German** (4 cr). Pronunciation, vocabulary, reading, spoken German, and functional grammar.

FL/GN **124 Elementary German Reviewed** (4 cr). Not open for cr to students who have taken FL/GN 121 or equiv in college. Review of subject matter of FL/GN 121-122 with emphasis on functional grammar and reading. Prereq: high school German or perm.

FL/GN **125-126 German for Graduate Students** (0 cr). Preparation for the doctoral reading examination. Two 1-hr rec per wk. Graded on the basis of P or F.

FL/GN **200** (s) **Seminar** (cr arr). Prereq: perm.

FL/GN **204** (s) **Special Topics** (cr arr).

FL/GN **221-222 Intermediate German** (4 cr). Reading, grammar review, speaking, and writing. Prereq: FL/GN 122.

FL/GN **223-224 Intermediate German: Scientific** (4 cr). Readings adapted to the needs of students in scientific curricula. Prereq: FL/GN 122.

FL/GN **299** (s) **Directed Study** (cr arr). Prereq: perm.

FL/GN **321-322 Advanced German Grammar and Composition** (3 cr). Recommended for prospective teachers of German.

FL/GN **325-326 German Culture and Institutions** (3 cr). Recommended for prospective teachers of German.

FL/GN **327-328 Survey of German Literature** (3 cr). To the close of the 19th century.

FL/GN **400** (s) **Seminar** (cr arr). Prereq: perm.

FL/GN **404** (s) **Special Topics** (cr arr).

FL/GN **421-422 Nineteenth-Century German Literature** (3 cr).

FL/GN **423-424 Modern German Literature** (3 cr).

FL/GN **425-426 Eighteenth-Century German Literature** (3 cr).

FL/GN **427-428 Classical Period in German Literature** (3 cr).

FL/GN **429-430 German Phonetics** (1 cr). Phonetic description and phonemic analysis; stress, its nature and place; intonation patterns in conversation; reading of prose and poetry.

FL/GN **431-432 German Composition and Conversation** (2 cr).

FL/GN **433-434 German for Teachers** (2 cr). Language and culture; pronunciation and diction.

FL/GN **449 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm of dept.

FL/GN **498** (s) **Proseminar** (1-3 cr, max 12). May be graded on the basis of P or F when this grading system is uniform for all students in the class. Prereq: perm.

FL/GN **499** (s) **Directed Study** (cr arr). Prereq: perm.

FL/GN **500 Master's Research and Thesis** (cr arr).

FL/GN **501** (s) **Seminar** (cr arr). Prereq: perm.

FL/GN **502** (s) **Directed Study** (cr arr). Prereq: perm.

FL/GN **504** (s) **Special Topics** (cr arr).

FL/GN **506** (s) **Workshop** (cr arr). Prereq: perm.

FL/GN **523 History of the German Language** (3 cr).

FL/GN **524 Middle High German** (3 cr).

FL/GN **525 Goethe's Faust** (3 cr).

FL/GN **597** (s) **Practicum** (cr arr). Prereq: perm.

FL/GN **598** (s) **Internship** (cr arr). Prereq: perm.

FL/GN **599** (s) **Research** (cr arr). Prereq: perm.

GREEK

FL/GK **200** (s) **Seminar** (cr arr). Prereq: perm.

FL/GK **204** (s) **Special Topics** (cr arr).

FL/GK **299** (s) **Directed Study** (cr arr). Prereq: perm.

FL/GK **341-342 Elementary Greek** (4 cr). Pronunciation, vocabulary, reading, and functional grammar.

FL/GK **400** (s) **Seminar** (cr arr). Prereq: perm.

FL/GK **404** (s) **Special Topics** (cr arr).

FL/GK **441-442 Intermediate Greek** (4 cr). FL/GK 441: Xenophon's *Anabasis.* FL/GK 442: Plato's *Apology of Socrates* and Euripides' *Alcestis.*

FL/GK **449 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm of dept.

FL/GK **498** (s) **Proseminar** (1-3 cr, max 12). May be graded on the basis of P or F when this grading system is uniform for all students in the class. Prereq: perm.

FL/GK **499** (s) **Directed Study** (cr arr). Prereq: perm.

ITALIAN

FL/IT **151-152 Elementary Italian** (4 cr). Pronunciation, vocabulary, reading, spoken Italian, and functional grammar.

FL/IT **200** (s) **Seminar** (cr arr). Prereq; perm.

FL/IT **204** (s) **Special Topics** (cr arr).

FL/IT **251-252 Intermediate Italian** (4 cr). Reading, grammar review, speaking, and writing. Prereq: FL/IT 152.

FL/IT **299** (s) **Directed Study** (cr arr). Prereq: perm.

FL/IT **400** (s) **Seminar** (cr arr). Prereq: perm.

FL/IT **404** (s) **Special Topics** (cr arr).

FL/IT **449 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm of dept.

FL/IT **498** (s) **Proseminar** (1-3 cr, max 12). May be graded on the basis of P or F when this grading system is uniform for all students in the class. Prereq: perm.

FL/IT **499** (s) **Directed Study** (cr arr). Prereq: perm.

LATIN

FL/LA **161-162 Elementary Latin** (4 cr). Pronunciation, vocabulary, reading, spoken Latin, and functional grammar.

FL/LA **200** (s) **Seminar** (cr arr). Prereq: perm.

FL/LA **204** (s) **Special Topics** (cr arr).

FL/LA **261-262 Intermediate Latin** (4 cr). Reading, grammar review, speaking, and writing. Prereq: FL/LA 162.

FL/LA **299** (s) **Directed Study** (cr arr). Prereq: perm.

FL/LA **361-362 Advanced Latin Grammar and Composition** (3 cr). Recommended for prospective teachers of Latin.

FL/LA **365-366 Survey of Latin Literature** (3 cr). To the close of the third century.

FL/LA **400** (s) **Seminar** (cr arr). Prereq: perm.

FL/LA **404** (s) **Special Topics** (cr arr).

FL/LA **499 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm of dept.

FL/LA **461-462 Latin Literature of the Augustan Age** (3 cr).

FL/LA **463-464 Latin Literature of the Republic** (3 cr).

FL/LA **465-466 Latin Literature of the Silver Age** (3 cr).

FL/LA **467-468 Latin for Teachers** (2 cr).

FL/LA **498** (s) **Proseminar** (1-3 cr, max 12). May be graded on the basis of P or F when this grading system is uniform for all students in the class. Prereq: perm.

FL/LA **499** (s) **Directed Study** (cr arr). Prereq: perm.

RUSSIAN

FL/RU **171-172 Elementary Russian** (4 cr). Pronunciation, vocabulary, reading, spoken Russian, and functional grammar; learning through audio-visual aids. FL/RU 171 also offered by correspondence study.

FL/RU **200** (s) **Seminar** (cr arr). Prereq: perm.

FL/RU **204** (s) **Special Topics** (cr arr).

FL/RU **271-272 Intermediate Russian** (4 cr). Reading, grammar review, speaking, and writing. Prereq: FL/RU 172.

FL/RU **299** (s) **Directed Study** (cr arr). Prereq: perm.

FL/RU **371-372 Advanced Russian Grammar and Composition** (3 cr). Recommended for prospective teachers of Russian.

FL/RU **400** (s) **Seminar** (cr arr). Prereq: perm.

FL/RU **404** (s) **Special Topics** (cr arr).

FL/RU **449 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm of dept.

FL/RU **498** (s) **Proseminar** (1-3 cr, max 12). May be graded on the basis of P or F when this grading system is uniform for all students in the class. Prereq: perm.

FL/RU **499** (s) **Directed Study** (cr arr). Prereq: perm.

SPANISH

FL/SP **181-182 Elementary Spanish** (4 cr). Pronunciation, vocabulary, reading, spoken Spanish, and functional grammar.

FL/SP **184 Elementary Spanish Reviewed** (4 cr). Not open for cr to students who have taken FL/SP 181 or equiv in college. Review of subject matter covered in FL/SP 181-182. Prereq: 2 yrs of Spanish in high school or perm.

FL/SP **200** (s) **Seminar** (cr arr). Prereq: perm.

FL/SP **204** (s) **Special Topics** (cr arr).

FL/SP **281-282 Intermediate Spanish** (4 cr). Reading, grammar review, speaking, and writing. Prereq: FL/SP 182.

FL/SP **299** (s) **Directed Study** (cr arr). Prereq: perm.

FL/SP **381-382 Advanced Spanish Grammar and Composition** (3 cr). Recommended for prospective teachers of Spanish.

FL/SP **383-384 Hispanic Culture and Institutions** (3 cr). Includes topics in Spanish-American civilization.

FL/SP **385-386 Survey of Spanish Literature** (3 cr).

FL/SP **387-388 Survey of Spanish-American Literature** (3 cr).

FL/SP **400** (s) **Seminar** (cr arr). Prereq: perm.

FL/SP **404** (s) **Special Topics** (cr arr).

FL/SP **449 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm of dept.

FL/SP **481-482 Nineteenth-Century Spanish Literature** (3 cr).

FL/SP **483-484 Golden Age in Spanish Literature** (3 cr). Sixteenth and seventeenth centuries.

FL/SP **485-486 Contemporary Spanish Literature** (3 cr).

FL/SP **487-488 Contemporary Spanish-American Literature** (3 cr).

FL/SP **489-490 Spanish Phonetics** (1 cr). Phonetic description and phonemic analysis; stress, its nature and place; intonation patterns in conversation; reading of prose and poetry.

FL/SP **491-492 Spanish Composition and Conversation** (2 cr).

FL/SP **493-494 Spanish for Teachers** (2 cr). Language and culture; pronunciation and diction.

FL/SP **498** (s) **Proseminar** (1-3 cr, max 12). May be graded on the basis of P or F when this grading system is uniform for all students in the class. Prereq: perm.

FL/SP **499** (s) **Directed Study** (cr arr). Prereq: perm.

FL/SP **500 Master's Research and Thesis** (cr arr).

FL/SP **501** (s) **Seminar** (cr arr). Prereq: perm.

FL/SP **502** (s) **Directed Study** (cr arr). Prereq: perm.

FL/SP **504** (s) **Special Topics** (cr arr).

FL/SP **506** (s) **Workshop** (cr arr). Prereq: perm.

FL/SP **583 History of the Spanish Language** (3 cr).

FL/SP **584 Spanish Phonetics and Phonemics** (3 cr).

FL/SP **585 Cervantes** (3 cr).

FL/SP **597** (s) **Practicum** (cr arr). Prereq: perm.

FL/SP **598** (s) **Internship** (cr arr). Prereq: perm.

FL/SP **599** (s) **Research** (cr arr). Prereq: perm.

Forestry, Wildlife and Range Sciences

John H. Ehrenreich, Dean (202 FWR Bldg.). Faculty: Ernest D. Ables, David L. Adams, Gerald M. Allen, George H. Belt, Jr., David H. Bennett, Elwood G. Bizeau, Theodore C. Bjornn, John H. Ehrenreich, C. Michael Falter, James R. Fazio, Jerran T. Flinders, E. Bruce Godfrey, Charles R. Hatch, Robert C. Heller, Minoru Hironaka, Joseph E. Hoffman, Arland D. Hofstrand, Maurice G. Hornocker, John E. Houghton, John P. Howe, Kenneth E. Hungerford, Frederic D. Johnson, Leonard R. Johnson, John G. King, George W. Klontz, Howard Loewenstein, Craig MacPhee, John E. Mitchell, Ali A. Moslemi, Arthur D. Partridge, James M. Peek, Steven R. Peterson, Franklin H. Pitkin, Kenneth D. Sanders, John A. Schenk, Lee A. Sharp, John Schomaker, Kenneth M. Sowles, Ronald W. Stark, Karel J. Stoszek, Joseph J. Ulliman, Chi-Wu Wang, Robert G. White.

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; orientation to the university and college.

FWR **200** (s) **Seminar** (cr arr). Prereq: perm.

FWR **203** (s) **Workshop** (cr arr). Prereq: perm.

FWR **204** (s) **Special Topics** (cr arr).

FWR **205 Wildland Resource Conservation** (3 cr). Not open to students in the College of FWR. Basic concepts of forest and rangeland ecology; major resources of wildlands, their use, and the principles of management which lead to their conservation; man's role in the natural environment and problems of pollution. Two days of field trips.

FWR **216 Tree Identification** (2 cr). Not open to students in the College of FWR. Identification, distribution, and economic use of important trees of western U.S.; emphasis on Idaho trees. One lec and one 2-hr lab per wk; one 1-day field trip.

FWR **221 Silvics** (3 cr). Ecological basis for the management of vegetation, especially forests. Prereq: general botany.

FWR **287 Principles of Wildland Recreation Management** (2 cr). Overview of the role of wildland recreation resources in contemporary society; integrates several areas of wildland recreation management, including political economy, behavior and leisure, interpretive analysis, and planning into an overall multiple-use management framework.

FWR **294 Models for Resource Decisions I** (3 cr). Methodical, logical, and scientific approach to problem solving for students of natural resources; topics stress use of systems and mathematics to identify and evaluate factors influencing natural resources. Prereq: Math 180 and computer course.

FWR 299 (s) **Directed Study** (cr arr). Prereq: perm.

FWR **300 Forest Resource Measurements** (1-4 cr, max 4). Map and aerial photo measurement and interpretation; land surveying; log, tree, and stand measurement; wildland surveys for resource inventories and mapping. Four weeks of all-day summer camp classes at McCall. Prereq: course in surveying.

FWR **301 Wildland Ecology** (4 cr). Ecological principles, methods, and concepts as applied to forest, range, wildlife, and fishery management; ecological basis for integrated management of wildland. Four weeks of all-day summer camp classes at McCall. Prereq: 221 and systematic botany.

FWR **302 Wildland Recreation Field Studies** (3 cr). Includes application of specialized techniques involved in wildland measurements, field trips, case studies, and site evaluations. Three wks of all-day summer camp classes at McCall.

FWR **303 Forest Resources Conservation** (2 cr). Ecosystem approach to resource management on forest and range lands; observations of management practices integrating timber, range forage, wildlife, fish, water, and recreation resources, stressing principles which lead to their conservation. Two weeks of all-day classes during summer post session at McCall. Prereq: course in a biological science.

FWR 305 **Farm Forestry** (2 cr). The farm woodlot, growing wood products; seasoning, preservation, use, and marketing of farm forest products; windbreak and shelterbelt planting; forestry in the economics of agriculture. Prereq: jr standing in agriculture.

FWR **307 Biometry** (3 cr). See Ag 321.

FWR **314 Wildlife Ecology** (2 cr). Adaptation of wildlife species to physical components of the environment; inter- and intraspecific behavior patterns; application of concepts and principles to conservation and management of wildlife in natural and altered habitats. Prereq: general ecology or perm.

FWR **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 per wk; two 1-day field trips. Prereq: 301 and systematic botany.

FWR **327 Elementary Forest Tree Improvement** (2 cr). Same as Genet 307. Basic genetic principles and practices of forest tree improvement. Two ½-day field trips. Prereq: general botany.

FWR **331 Introduction to Wood Technology** (3 cr). Plant anatomy pertinent to woody plants; identification of woods by gross and minute characteristics; physical and chemical properties of commercial woods; relation of wood properties to wood processing and wood in use. Two lec and two 2-hr labs per wk; two days of field trips. Prereq: general botany.

FWR **351 Elements of Range Management** (3 cr). Development of the range industry; grazing regions; production and utilization of range forage; range improvement and reseeding; range survey and management plans; relation of range management to other phases of wildland management. Prereq: general botany.

FWR **361 Farm and Natural Resource Appraisal** (3 cr). See AgEc 361.

FWR **367 Fire Control** (2 cr). Objectives and policy; effects of fire on the ecosystem; fire behavior; use of fire as a wildland management tool. One 2-day field trip.

FWR **370 Principles of Forest Management** (2 cr). Not open to students in forest resources. Forest regions and industries; silvicultural principles and practices employed in timber production and utilization; interrelations between wood production and other uses of forest land.

FWR **375 Aerial Photo Interpretation of Renewable Natural Resources** (2 cr). Quantitative and qualitative evaluation of aerial photos for planning and decision making in renewable natural resource management, including planning for and obtaining aerial photos, planimetric mapping, measurement and interpretation of forest, wildlife, and range resources. One lec and one lab per wk. Prereq: college algebra.

FWR **385 Wildland Recreation Management** (3 cr). Analysis of recreation management techniques focusing on specific case

studies; consideration of social, biological, and economic implications.

FWR **386 Wildland Recreation Planning** (3 cr). Integrates both macro and micro aspects of land-use planning with the institutional constraints associated with multiple-use management, national environmental policy, and national land-use policy as related to wildland recreation management.

FWR **390 Principles of Fish and Wildlife Ecology** (3 cr). Not open to majors in wildlife and fisheries. History and objectives of wildlife management and population changes associated with habitat interaction, predation, habitat relationships, and interrelationships with other renewable resources. Prereq: course in ecology or perm.

FWR **397 Renewable Natural Resources Internship** (1-3 cr). Supervised field experience with an appropriate public or private agency. Graded on the basis of P or F. Prereq: perm.

FWR **400** (s) **Seminar** (cr arr). Prereq: perm.

FWR **401 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

FWR **403** (s) **Workshop** (cr arr). Prereq: perm.

FWR **404** (s) **Special Topics** (cr arr).

FWR **WS406 Radiation Ecology** (2 cr). Alt/yrs 76-77. WSU BioS 440. Fate and effect of radionuclides in the natural environment.

FWR **408 Forest Soils** (2 cr). Same as Soils 408. Properties of wildland soils; forest humus; soil-site relationships; improvement of unproductive forest soils and reforestation; management of nursery soils. Prereq: general soils.

FWR **411 Ichthyology** (4 cr). See Zool 481.

FWR **ID413 Fish Ecology** (2 cr). Racial discrimination, migration, and spawning activities of salmonids; envirnonmental stress with reference to physiology, competition, predation, and pollution. Two lec per wk; three days of field trips. Prereq: ecology or perm.

FWR **415 Limnology** (3 cr). Same as Zool 436. Interrelationships of the physical, chemical, and biological features of lakes and streams. One ½-day field trip. Prereq: general chemistry and ecology.

FWR **416 Limnology Lab** (1 cr). Limnological methodology and comparative techniques of limnological studies; analyses of processes in experimental aquatic systems. One 2-hr lab per wk; two days of field trips. Prereq or coreq: 415.

FWR **417 Fish Culture and Diseases** (4 cr). Management, nutrition, and diseases of warmwater, coldwater, and marine fishes in extensive and intensive culture systems. Two days of field trips. Prereq: 411.

FWR **418 Fishery Management Techniques** (3 cr). Methods and techniques employed in fishery management. Prereq: 307 and ecology.

FWR **420 Tropical Dendrology/Ecology** (3 cr). Tropical and subtropical vegetation types of the world; distribution, physiognomy, and controls; identification, ecology, and uses of major pantropical trees and associated character vegetation. Two 2-hr lec-labs per wk. Prereq: systematic botany.

FWR **422 Forest Planting** (3 cr). Methods of seed collection, extraction, and storage; germination; nursery practice; field planting. One lec and one 3-hr lab per wk; one 2-day field trip. Prereq: 221, 301.

FWR **424 Silviculture** (3 cr). Silvicultural cutting systems, cultural operations, and the silvicultural characteristics of important commercial species. Two lec and one 3-hr lab per wk; one or two 1-day field trips. Prereq: 221, 301.

FWR **434 Forest Engineering and Harvesting** (3 cr). Management system concept including reconnaisance, engineering concepts of route design and logging, silvicultural and milling considerations, yarding systems and costs; development of a logging plan for an operating area. Five days of field trips. Prereq: 294, 300.

FWR **436 Biological Properties of Wood** (3 cr). Wood quality and its relation to growing conditions in the forest; theory and practice of air- and kiln-drying methods for wood; protection of wood by chemical impregnation. Two lec and one lab per wk; one 5-day field trip. Prereq: general botany.

FWR **437 Physical Properties of Wood** (3 cr). Technology and physical properties of woods, including wood-moisture relations; mechanical properties; application of strength data and design principles to the use of wood in construction. Two lec and one lab per wk. Prereq: 331.

FWR **438 Chemical Properties of Wood** (3 cr). Chemistry of wood; chemical and technological processes for the conversion of wood into commodities; properties and uses; industrial trends; adhesives and their use; wood finishing. Two lec and one lab per wk; five days of field trips. Prereq: organic chemistry.

FWR **442 Fish and Wildlife Management** (3 cr). Measurement, analysis, and manipulation of fish and wildlife populations and their habitats; emphasis on outside reading, case histories, and objective decision-making procedures. Two lec and one lab per wk; two 1-day field trips. Prereq: 314.

FWR **446 Diseases of Wild Birds and Mammals** (2 cr). Alt/yrs 76-77. Same as VS 446. Epidemiology, pathology, treatment, and control of the principal diseases of wild birds and mammals. Prereq: perm.

FWR **447 Principles of Big Game Management** (3 cr). Management of big game animals in coordination with other land uses and habitat capabilities. Prereq: 314.

FWR **448 Fish and Wildlife Population Ecology** (3 cr). Attributes, methods of analysis, natality and mortality, growth forms, fluctuations, and regulation of fish and wildlife populations; application of population principles to conservation and management. Prereq: 307, 314.

FWR **449 Wildlife Techniques** (2 cr). Techniques of wildlife investigation and management. One 3-hr lab per wk; three days of field trips. Prereq or coreq: 314.

FWR **452 Range Communities** (3 cr). Vegetational composition, physical characteristics, grazing reactions, and management of plant communities in the major range regions. Two 3-hr lec-labs per wk; two days of field trips. Prereq: general botany; prereq or coreq: systematic botany.

FWR **453 Range Methods and Techniques** (3 cr). Techniques and methods of measuring and describing: (1) range vegetation, and (2) consumption and use of vegetation by animals. Two lec and one lab per wk; two days of field trips. Prereq: 307, 351.

FWR **454 Range Improvement and Management Planning** (3 cr). Objectives, methods, and benefits of range-improvement practices and their impact on management; fundamentals of management planning for the utilization of rangeland resources; problem definition and analysis, determination of objectives, action planning, and follow-up measures. Two lec and one lab-disc per wk; one 1-wk field trip. Prereq: 351, 453.

FWR **455-456 Integrated Range Resource Management** (4 cr). Integration and application of principles learned in previous courses to resource management and management planning. Four 2-hr labs per wk; 7-10 days of field trips. Prereq: 351 and 452 or perm; coreq: 453B and 483B for 455; 454 and 494B for 456.

FWR **462 Watershed Management** (3 cr). Hydrologic cycle in the context of forest and range lands; emphasis on influence of land management practices on the processes of surface run-off and erosion. Two lec and one 2-hr lab per wk; three days of field trips.

FWR **463 Watershed Analysis and Planning** (3 cr). Procedures and techniques for analyzing the impact of land management practice on the hydrologic characteristics of forest catchments. Two lec and one 2-hr lab per wk. Prereq: 462 or perm.

FWR **464 Forest Pathology** (2 cr). Pathology, symptomatology, causes of diseases and decays; environmental influences on disease; disease as part of the forest environment; control and protection as related to silviculture, management, and utilization. One lec and one lab per wk; one 1-day field trip. Prereq: 301, 474.

FWR **467 Forest Entomology** (3 cr). See Ent 467.

FWR **470 Introduction to Forest Land Resources Planning** (2 cr). Intro to multiple-objective land-use planning concepts; current techniques and methods applied to forest and range lands.

FWR **471 Forest Land Resources Planning Applications** (2 cr).

Development of multiple-objective land-use plan and impact statement using contemporary computer-based analytical and mapping techniques. Two 2-hr labs per week. Prereq: course in computer prog and 470, or perm.

FWR **472 Fundamentals of Remote Sensing of Environment** (2 cr). Open to juniors, seniors, and graduate students. Intro to remote sensing systems in current use (photography, multispectral and thermal scanning systems, radar, and advanced imaging systems); data acquisition on the ground and from remote locations, including aircraft and satellites; imagery interpretation and analysis; emphasis on applications of remote sensing to natural resources and the environment. Prereq: course in physics.

FWR **474 Mensuration** (3 cr). Theory of log, tree, and stand measurement; elementary forest sampling, variable probability sampling; growth studies. Two lec and one 2-hr lab per wk. Prereq: 300, 307.

FWR **476 Forest Regulation and Finance** (3 cr). Organization and control of forest growing stock to meet management objectives; appraisal of land, growing stock, stumpage, and damages; applications of simple and compound interest, capitalization and discount formulae for forest business. Two lec and one 2-hr lab per wk; eight days of field trips. Prereq: 424, 474.

FWR **483 Economics of Conservation** (3 cr). Same as AgEc 483. Economics of production of forest goods and services; role of economic forces in resource analysis and conservation; planning of forest resource use by the firm and society. Prereq: general economics.

FWR **484 Forest Policy and Administration** (3 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 programs. Prereq: general economics.

FWR **487 Wildland Recreation Interpretive Methods** (3 cr). Theory and application of communicating natural resource messages by interpretive naturalists and other wildland managers to user publics through various sensory channels.

FWR **488 Interpretive Methods Lab** (2 cr). Practical experience in the development and application of interpretive materials and techniques; concentration is on equipment and those methods commonly employed by natural resource agencies for communicating management programs and interpreting the natural environment to visitors. One 1-day field trip. Prereq: 487 or perm.

FWR **489 Personalities and Philosophies in Conservation** (2 cr). Examination of the lives and thinking of individuals who have significantly influenced conservation practice or the issues surrounding it.

FWR **490 Wilderness Management** (3 cr). Historical and legal aspects of the wilderness concept; conceptual and applied approaches to wilderness management considering both ecological and sociological elements; recent research related to wilderness management.

FWR **493 Environmental Law** (2 cr). Basic laws governing the administration of wildland resources, and laws designed to regulate impact on the environment. Prereq: sr standing.

FWR **494 Models for Resource Decisions II** (3 cr). Same as InfSc 494. Use of mathematical models of resource systems to explore managerial strategy; problem analysis; systems concepts and optimization of resource allocation. Prereq: 294, sr standing in the College of FWR or perm.

FWR **495 Fish and Wildlife Seminar** (1 cr, max 2). For majors in wildlife-fishery resources. Discussions integrating biological, social, political, economic, and philosophic aspects of fish and wildlife problems.

FWR **496 Forest Products Seminar** (1 cr). Contemporary problems relevant to the manufacture of wood products including lumber, plywood, hardboard, particle board, and paper; equipment and basic layouts.

FWR **497 Land Management Seminar** (1 cr, max 2). Assigned studies in wildland management. Graded on the basis of P or F. Prereq: sr standing in the College of FWR.

FWR **498 International Wildland Management** (1-3 cr, max 3). World approaches and problems in forest, wildlife, range, and fisheries management. Prereq: sr standing and perm.

FWR **499** (s) **Directed Study** (cr arr). For the individual student; conferences, library, field, or lab work. Areas of concentration normally offered are forest, range, wildlife, fishery or watershed management, and wood utilization technology. Prereq: sr standing in the College of FWR, GPA 2.5, and perm.

FWR **500 Master's Research and Thesis** (cr arr).

FWR **501** (s) **Seminar** (cr arr). Major philosophical, management, and research problems of wildlands; presentation of individual studies on assigned topics. Prereq: perm.

FWR **502** (s) **Directed Study** (cr arr). Normally offered in forestry, range, wildlife, fishery, wood, and watershed sciences. Prereq: perm.

FWR **503** (s) **Workshop** (cr arr). Selected topics in the conservation and management of natural resources. Prereq: perm.

FWR **504 Fundamentals of Research** (2 cr). Objectives and techniques of research; historical development of the scientific method; preparation of working plans; assembly, interpretation, and presentation of data; structure and use of the scientific literature; and preparation of manuscripts. Enrollment limited to fifteen.

FWR **505** (s) **Special Topics** (cr arr).

FWR **WS507 Statistical Ecology** (3 cr). Alt/yrs 77-78. WSU BioSc 530. Collection and interpretation of ecological data according to biometrical procedures.

FWR **ID510 Advanced Fishery Management** (3 cr). Alt/yrs 77-78. 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.

FWR **511 Fish Physiology** (4 cr). Alt/yrs 77-78. Principles and methods used to study vital organs, organ systems, growth and reproduction of fishes with emphasis on osmoregulation, metabolism, endocrinology, and respiration. Prereq: 411 and perm.

FWR **512 Aquatic Pollution Ecology** (3 cr). Alt/yrs 76-77. Principles and working examples of the ecology of polluted aquatic stream and lake habitats. Two field trips. Prereq: 415 or perm.

FWR **513 Advanced Fish Culture** (3 cr). Alt/yrs 76-77. Principles underlying freshwater and marine fishes with emphasis on pond design, nutrition, bioenergetics, genetics, and water quality interactions. Prereq: 411, 415, and perm.

FWR **514 Fish Population Dynamics** (3 cr). Alt/yrs 76-77. Fish population dynamics; models and empirical examples of density changes, competition, and predation; mechanisms controlling population density and biomass; social behavior; production in fish populations; aquatic community processes.

FWR **515 Advanced Limnology** (3 cr). Alt/yrs 77-78. Physicochemical interrelationships and dynamics of primary and secondary production in aquatic systems. Two 4-hr lec-labs per wk. Prereq: 415.

FWR **516 Advanced Fish Diseases** (4 cr). Alt/yrs 76-77. Same as Bact 516. Epidemiology, treatment and control of the principal viral, bacterial, parasitic, and noninfectious diseases of freshwater and marine fish with emphasis on the salmonids. Prereq: 514, Bact 250 or equiv, and perm.

FWR **ID517 Fish Behavior** (2 cr). Response of fishes to environmental stimuli. One lec and one scheduled and three unscheduled hrs of lab per wk. Prereq: ecology and biometrics.

FWR **521 Advanced Forest Soils** (3 cr). Same as Soils 521. Wildland soils and their relation to vegetation; emphasis may be varied according to the specific interest of students. Two lec and one lab per wk; one or two 1-day field trips. Prereq: perm.

FWR **523 Forest Community Classification** (3 cr). Field course in structure and identification of forest communities of northern Rockies. One 1-hr lec and one 1-day field lab per wk for half semester. Prereq: Bot 241 or equiv, a course in plant ecology, and perm. Enrollment limited to 10 students.

FWR **525 Advanced Silviculture** (2 cr). Silvicultural systems and intermediate cuttings. Two days of field trips. Prereq: 424.

FWR **527 Forest Genetics** (3 cr). Same as Genet 527. Application of principles of genetics to the improvement of trees and silvicultural practices. Two lec and one lab per wk. Prereq: 424 and general genetics.

FWR **528 Forest Tree Improvement** (3 cr). Same as Genet 528. Practical problems and techniques related to genetic improvement of forest trees. Two days of field trips. Prereq: 424 and general genetics.

FWR **531 Advanced Wood Technology** (2-3 cr). Anatomical features of wood, including fibers; methods of preparing woody tissues for study; physical properties of wood and their implications on technology. Prereq: 331, 437.

FWR **536 Wood Chemistry** (3-4 cr). Chemistry of woody tissues, including lignin, cellulose, hemicelluloses, and other polysaccharides; lab work in the analysis and the chemistry of wood. Prereq: 438.

FWR **541 Advanced Population Biology** (2 cr). Alt/yrs 76-77. Readings and discussions of current theories of population control, their biological basis, and application to wildlife populations. Prereq: 442, 544.

FWR **542 Wetland Habitat Management** (2 cr). Alt/yrs 77-78. Ecology and management of species using wetland habitats and current practices, problems, and procedures for managing such habitats. Lec-disc periods, field labs; three days of field trips. Prereq: background in ecology, wildlife populations, and knowledge of aquatic plants.

FWR **544 Game Management** (3 cr). Big game species and their populations and habitats; objective balance of the components of habitats with population levels. One 3-hr lec per wk; three days of field trips. Prereq: 442, Zool 483.

FWR **545 Game Range Ecology** (2 cr). Alt/yrs 77-78. Reading and discussion on autoecology of forage plants important to game animals and synecology of game ranges. Prereq: 442, perm, background in plant and animal ecology.

FWR **546 Upland Game Ecology** (2 cr). Alt/yrs 76-77. Ecology and management of wildlife species using forest and rangeland habitats; current management problems and procedures. Three days of field trips. Prereq: perm.

FWR **ID551 Range Ecology: Concepts** (3 cr). Alt/yrs 77-78. Ecological concepts and methods as applied to the classification and use of lands for grazing purposes; influence of livestock, big game, other biotic factors, including insects and rodents, and fire on plant species and communities. Prereq: plant ecology and at least one course in range management.

FWR **552 Range Ecology: Quantitative** (2 cr). Alt/yrs 77-78. Quantitative treatment of ecological data to show species interaction, soil-vegetation relations, and classification and characterization of plant communities. Prereq: 307, ID551.

FWR **553 Range Forage Productivity and Management** (3 cr). Alt/yrs 76-77. Measurement of forage productivity and the factors that influence production; evaluation of animal response under various management systems. Prereq: animal nutrition, two courses in range management, including range methods.

FWR 555 **Current Issues in Range Resource Management** (1-3 cr, max 3). Alt/yrs. Investigation and discussion of current issues in range resource management and closely related fields.

FWR **ID563-564 Advanced Forest Pathology** (2-4 cr). Field methods, lab techniques, and use of original literature in preparation for extensive studies of tree diseases and rots, deterioration of wood products, and the organisms which cause them; seminar in selected problems in forest pathology and their relations to forest practices. Prereq: 464.

FWR **565 Biometeorology** (3 cr). Alt/yrs 77-78. Interactions of the atmosphere and plant-soil-water complex; physical laws governing energy and mass balances of selected plant communities and their biological implications; mountain-valley wind systems, radiation balance, evapotranspiration, and diffusion processes; related instrumentation. Two lec and one 2-hr lab per wk; one 2-day field trip. Prereq: one year physics (calculus desirable) or perm.

FWR **566 Activities of Tree-Inhabiting Organisms** (2 cr). Alt/yrs 76-77. Environmental and biochemical actions and interactions of important bacteria, fungi, higher plants, and animals (excluding insects) associated with trees. Prereq: ID563 or 564, and one year of organic chemistry.

FWR **569 Advanced Forest Entomology** (3 cr). See Ent 569.

FWR **573 Advanced Aerial Photo Interpretation** (2-3 cr). Aerial photo 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 per wk; two 1-day field trips. Prereq: 375 or equiv, or perm.

FWR **574 Advanced Forest Mensuration** (2 cr). Mathematical and statistical principles and techniques in determination of volume and growth of trees and stands; applications of sampling theory and correlation analysis. Prereq: 474 or equiv and course in statistical methods, preferably beyond the elem course.

FWR **575 Advanced Forest Management** (2 cr). Aspects of forest regulation; recent developments in applied forest management and important contributions in forest management.

FWR **581-582 Advanced Forest Economics** (2 cr). Economic principles, legislation, and policies affecting forestry, particularly those bearing on the character and intensity of land use.

FWR **587 Advanced Wildland Recreation** (2 cr). Problems, practices, and economics of the use of lands and waters for recreation. Two days of field trips. Prereq: course in forest recreation.

FWR **589 Water Resources Seminar** (1 cr). See Inter 589.

FWR **595** (s) **Problems in World Resources** (1-3 cr, max arr). Normally offered in forest, wildlife, fisheries, and grazing resources. Max 3 cr in any one field. Consult the time schedule for areas offered each semester. Prereq: 498 or equiv.

FWR **597** (s) **Practicum** (cr arr). Prereq: perm.

FWR **598** (s) **Internship** (cr arr). Prereq: perm.

FWR **599** (s) **Research** (cr arr). Prereq: perm.

FWR **600 Doctoral Research and Dissertation** (cr arr).

General Studies

Francis Seaman, Director (111 Admin. Bldg.). Faculty: Jeanette L. Driskell, Elinor L. Michel, Francis Seaman.

GenSt **101 Basic Numerical Skills** (3 cr). Colleges, at their discretion, may permit students to count this course toward general elective cr only; may not be counted toward specific curricular requirements. Numbers, percentages, addition, subtraction, multiplication, and division; algebraic expressions; exponents; factoring; elementary equations; stress on individual needs. Five class sessions per wk. Sections limited to 25 students. Prereq: perm.

GenSt **105 Reading and Study Skills** (1-2 cr, max 2). Strategies for college study, including scheduling, intensive reading techniques, note taking, test preparation; intro to skimming and speed reading. 2 class sessions per wk. Students who register for first half semester receive 1 cr; those who register for full semester receive 2 cr.

GenSt **111 College Preparatory Reading/Writing** (3 cr). Fundamentals of reading, paraphrasing, summarizing, and of writing essay-test answers; individual help in remedying deficiencies in usage, spelling, and vocabulary. Five class sessions per wk.

GenSt **200; 400** (s) **Seminar** (cr arr).

GenSt **203; 403** (s) **Workshop** (cr arr).

GenSt **204; 404** (s) **Special Topics** (cr arr).

GenSt **299; 499** (s) **Directed Study** (cr arr).

GenSt **497 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

Genetics

Coordinator (115 Life Sci. Bldg.). Faculty: Ross E. Christian, O. Clifford Forbes, Al J. Lingg, Edmund E. Tylutki, Chi-Wu Wang.

Genet **106 Heredity and Man** (2 cr). See Biol 150.

Genet **200; 400; 501** (s) **Seminar** (cr arr). Prereq: perm.

Genet **299; 499; 502** (s) **Directed Study** (cr arr). Prereq: perm.

Genet **307 Elementary Forest Tree Improvement** (2 cr). See FWR 327.

Genet **314 General Genetics** (3 cr). See Biol 351.

Genet **315 Experimental Genetics** (1 cr). See Biol 352.

Genet **421 Population Genetics** (3 cr). See Anl 421.

Genet **422 Animal Breeding** (3 cr). See Anl 422.

Genet **446 Plant Breeding** (3 cr). See PlSc 446.

Genet **511 Genetics of Fungi** (3 cr). See Bot ID558.

Genet **512 Microbial Genetics** (2-4 cr). See Bact 512.

Genet **522 Statistical Genetics** (3 cr). See Anl 522.

Genet **527 Forest Genetics** (3 cr). See FWR 527.

Genet **528 Forest Tree Improvement** (3 cr). See FWR 528.

Genet **537 Physiological and Molecular Genetics** (2-3 cr). See Biol 555.

Geography

Morton W. Scripter, Dept. Head (210 Mines Bldg.). Faculty: Harry H. Caldwell, Richard L. Day, Alan A. DeLucia, John F. Hultquist, O. Paul Matthews, Morton W. Scripter.

Geog **100 Man's Physical Environment** (4 cr). Natural environment of man: nature, distribution, and relationships of climate, landforms, oceans, vegetation, hydrography, and soils; map and airphoto analysis. Three lec and one 2-hr lab per wk.

Geog **140 Economic Geography** (3 cr). Reciprocal relationships between mankind and the earth environment, resource distribution, changing pattern of commodity movement and industrialization; effect upon national and international developments.

Geog **200** (s) **Seminar** (cr arr). Prereq: perm.

Geog **203** (s) **Workshop** (cr arr). Prereq: perm.

Geog **204** (s) **Special Topics** (cr arr).

Geog **250 World Regional Geography** (3 cr). Countries, regions, and peoples of the world; interrelationships between man and his physical and cultural environments.

Geog **265 Cultural Geography** (3 cr). Population growth, distribution, and movement; origin and dispersal of culture traits; landscape settlement patterns; man's impact on the land and the environment's impact on man.

Geog **299** (s) **Directed Study** (cr arr). Prereq: perm.

Geog **315 Geomorphology** (3 cr). See Geol 335.

Geog **327 Environment and Population of the United States** (4 cr). Geographic survey of recent trends in population, affluence, science, and technology and their influence on the liveability of the environment of the U.S.

Geog **357 Europe** (3 cr). Regional and systematic geography of Europe, exclusive of the Soviet Union, with emphasis on contemporary problems.

Geog **359 Mexico and Middle America** (3 cr). Regional and systematic geography of Middle America and Mexico with emphasis on contemporary problems.

Geog **360 South America** (3 cr). Regional and systematic geography of South America with emphasis on contemporary problems.

Geog **362 United States and Canada** (3 cr). Regional and systematic geography of the U.S. and Canada with emphasis on contemporary problems. Two 1-day field trips.

Geog **364 Idaho and the Pacific Northwest** (3-4 cr). Regional and systematic geography of the Pacific Northwest with emphasis on Idaho and on contemporary problems. One 2-day field trip.

Geog **380 Cartography** (3 cr). Visual presentation, map projections, lettering and sketching, techniques, layout, compilation and design problems, three-dimensional models, map and photo interpretation. One lec and six hrs of lab per wk.

Geog **400** (s) **Seminar** (cr arr). Prereq: perm.

Geog **401 Atmospheric Environment** (3 cr). Weather, air masses, storms and associated phenomena, meterological instruments, weather maps, forecasting; world's weather and climate types with emphasis on their effects upon man. One 1-day field trip. Prereq: 100 or Geol 101-102, or perm.

Geog **403** (s) **Workshop** (cr arr). Prereq: perm.

Geog **404** (s) **Special Topics** (cr arr).

Geog **427 Decision-Making in Resource Management** (3 cr). Impact of ecosystem analysis and conflicts over environmental quality control on conservation theory; economic, political, managerial, perceptual, and scientific factors in shaping decisions for allocating natural resources.

Geog **430 Urban Geography** (3 cr). Theory and models for the functions, origin, development, structure, and distribution of cities; urban land-use classification; geographic aspects of city planning. One 1-day field trip.

Geog **C439 Comprehensive Urban Plan Development** (3 cr). Designed for planning commission members, administrators, and elected officials; relationship between urban process and environment and comprehensive urban plan development; deals with specific elements of most comprehensive plans as applied to situations and cases in one's home city or town.

Geog **440 Spatial Organization of Society** (3 cr). Principles governing spatial organization of society; theoretical and empirical approaches to location of urban and rural settlement and economic activities; spatial structures and their interrelationship and changes in organization.

Geog **446 Geography of Transportation** (3 cr). Theoretical roles of transportation in spatial interaction; comparative advantages of air, water, motor vehicle, rail, and pipeline transport; world regional patterns of transportation.

Geog **447 Recreational Geography** (3 cr). Dynamics of recreational uses of land and water; measurement and planning; interaction of local and regional approaches; economic impact studies.

Geog **455 Asia** (3 cr). Regional and systematic geography of Asia with emphasis on contemporary affairs.

Geog **468 Geography of Administrative Areas** (3 cr). Geographic nature of administrative areas from election wards to counties; analysis of internal and external elements, power, division, and consolidation, boundary functions and effectiveness; case studies.

Geog **481 Advanced Cartography and Remote Sensing** (2 cr). Scribing, reproduction, color, infrared, thermal, and radar imagery, airbrush, computer cartography and model construction. Two 3-hr labs per wk; one 2-day field trip.

Geog **490 Trends in Geography** (3 cr). Prereq: sr standing.

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 Teaching of Geography** (3 cr). See Ed 443.

Geog **493-494 Seminar in Urban Studies** (2 cr). See Inter 493-494.

Geog **497** (s) **Practicum** (1-6 cr, max 6). Practical, on-the-job experience in applied geography, usually in the Cartographic Laboratory; oral and written reports are presented in which the student reviews and constructively criticizes the experience gained. Prereq: perm.

Geog **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services

performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. 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).

Geog **505 Applied Climatology** (3 cr). Climatic classifications, microclimatic investigations, instrumentation; impact of climate on agriculture, vegetation, and economic activities.

Geog **525 Plant Geography** (3 cr). See Bot 535.

Geog **526 Zoogeography** (2 cr). See Zool 538.

Geog **527 Experimental Conservation Workshop** (4 cr). A field-trip-oriented approach to conflict resolution concerning state and regional conservation questions.

Geog **529 Regional Land-Use Planning** (3 cr). Alternative regional goals, plans, structures, laws, spatial options, and their significance to the development of activities; comparison of various domestic and foreign approaches and experiences; and construction of models and scenarios of alternative proposals. One 2-day field trip.

Geog **533 Urban Structure** (3 cr). Internal structure of metropolitan areas; detailed consideration of urban social geography, intracity location models, urban morphology, and metropolitan development models. Prereq: 430 or perm.

Geog **534 Urban Systems** (3 cr). Systems approach to intercity relations that focus on the role of the city in the structure and development of space economies; detailed study of selected spatial and regional development models. Prereq: 430 or perm.

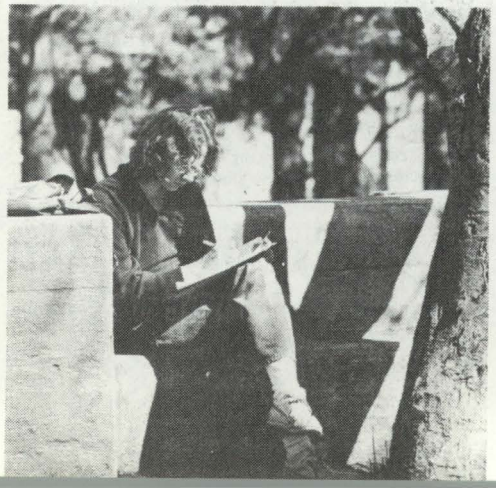
Geog **540 Location Theory** (3 cr). Hypotheses, models, and theoretical constructs which apply to locational decision-making in transportation, trade, manufacturing, and agriculture; contributions of Weber, Christaller, Greenhut, Hoover, Dunn, Von Thunen, and Losch. Prereq: economic geography and statistics.

Geog **ID570 Quantitative Geography** (3 cr). Application of univariate and multivariate statistical procedures to research in human and physical geography and to research in related fields; lab exercises conducted on the digital computer. Prereq: course in FORTRAN-IV, and Ag 321 or Bus 231 or Math 320 or Math 451-452.

Geog **571 Spatial Analysis** (3 cr). Statistical analysis and comparison of data organized by areas; spatial statistics; measurement of aggregation and concentration; description of areal distributions and gradients; regionalization techniques. Prereq: ID570.

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). Prereq: perm.

Geological Engineering

George A. Williams, Head, Dept. of Geology (211 Mines Bldg.). Faculty: Terry R. Howard, Dale R. Ralston, Carleton N. Savage, Peter L. Siems, George A. Williams, Roy E. Williams.

GeolE **200** (s) **Seminar** (cr arr). Prereq: perm.

GeolE **203** (s) **Workshop** (cr arr). Prereq: perm.

GeolE **204** (s) **Special Topics** (cr arr).

GeolE **299** (s) **Directed Study** (cr arr). Prereq: perm.

GeolE **301 Field Geology and Report Writing** (6 cr). See Geol 301.

GeolE **200** (s) **Seminar** (cr arr). Prereq: perm.

GeolE **403** (s) **Workshop** (cr arr). Prereq: perm.

GeolE **404** (s) **Special Topics** (cr arr).

GeolE **409 Ground Water** (3 cr). See Geol 409.

GeolE **435 Introduction to Geological Engineering** (3 cr). Application of geology to engineering problems; rock weathering; soil mechanics, fractures, landslide recognition; materials location; explosives; damsite and reservoir problems; earthquakes; route locations; requirements of a report for an engineering project. Two lec and one 2-hr lab per wk; two 1-day field trips. Prereq: Geol 101-102, and Phys 113 or 220.

GeolE **436 Geological Engineering Design** (3 cr). Application of engineering and geological principles to analysis and design in the construction industries. One 1-day field trip. Prereq: 435.

GeolE **476 Exploration Geology** (3 cr). Same as Geol 476. Design of geologic surveys and mineral exploration programs; integration and evaluation of geologic, geochemical, and geophysical exploration techniques. Prereq or coreq: Geol 475.

GeolE **485 Geochemical Exploration** (3 cr). See Geol ID485.

GeolE **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm of dept.

GeolE **499** (s) **Directed Study** (cr arr). Prereq: perm.

GeolE **500 Master's Research and Thesis** (cr arr).

GeolE **501** (s) **Seminar** (cr arr). Prereq: perm.

GeolE **502** (s) **Directed Study** (cr arr). Prereq: perm.

GeolE **503** (s) **Workshop** (cr arr). Prereq: perm.

GeolE **535 Seepage and Earth Dams** (3 cr). Same as CE 563. Principles of earth-dam design, failures, practical considerations in construction; principles governing the flow of water through soils. Prereq: perm.

GeolE **536 Advanced Geological Engineering Design** (3 cr). Alt/yrs. Design and construction of structures in rock, including tunnels, large underground openings, and slopes. Prereq: perm.

GeolE **537 Advanced Topics in Geochemical Engineering** (3 cr). Alt/yrs. Selected topics in geotechnical engineering with emphasis on recent developments. Prereq: perm.

GeolE **563 Geohydrology** (3 cr). See Hydro 563.

GeolE **578 Theory of Mineral Exploration** (2 cr). Alt/yrs 77-78. History and development of thought; statistical methods; application of geologic studies in search for mineral deposits.

GeolE **589 Water Resources Seminar** (1 cr). See Inter 589.

GeolE **595 Geology-Oriented Environmental Problems** (2 cr). See Geol 595.

GeolE **597** (s) **Practicum** (cr arr). Prereq: perm.

GeolE **598** (s) **Internship** (cr arr). Prereq: perm.

GeolE **599** (s) **Research** (cr arr). Prereq: perm.

Geology

George A. Williams, Dept. Head (211 Mines Bldg.). Faculty: John G. Bond, John H. Bush, William B. Hall, James H. Hardcastle, Terry R. Howard, Robert W. Jones, Charles R. Knowles, Maynard M. Miller, Dale R. Ralston, Rolland R. Reid, Carleton N. Savage, Peter L. Siems, Charles J. Smiley, Chien M. Wai, George A. Williams, Roy E. Williams.

Geol **101 Physical Geology** (3 cr). The earth, its composition, structure, and natural processes. Concurrent enrollment in 102 recommended. One 1-day field trip.

Geol **102 Physical Geology Laboratory** (1 cr). Lab study relevant to 101. Coreq: 101.

Geol **106 Historical Geology** (3 cr). Evolution of the physical earth, plants, and animals; techniques used in interpretation of geologic history. One 1-day field trip. Concurrent enrollment in 107 recommended.

Geol **107 Historical Geology Laboratory** (1 cr). Lab study relevant to 106. Coreq: 106.

Geol **X123 Geology of Idaho and the Pacific Northwest** (3 cr). Geologic history; development of geologic structures and present-day distribution of rocks and mineral deposits; geology of area in which the course is given.

Geol **X150 Applied Geology** (3 cr). Prospecting, mineral property development, water well location, food control, foundation and excavation problems; laws affecting mineral resource exploration and development. Prereq: perm.

Geol **200** (s) **Seminar** (cr arr). Prereq: perm.

Geol **203** (s) **Workshop** (cr arr). Prereq: perm.

Geol **204** (s) **Special Topics** (cr arr).

Geol **211 Ancient Life** (4 cr). Life in the different geologic periods; evolutionary development of organisms; lab study of fossils. Three lec and one 2-hr lab per wk; one 1-day field trip.

Geol **255 Mineralogy** (2 cr). Crystallography and mineralogy; properties, occurrence, uses, identification, and classification of rock-forming and ore minerals. One lec and one 2-hr lab per wk. Prereq or coreq: 101, 102; high school chemistry or one semester of college chemistry is recommended.

Geol **265 Lithology** (2 cr). Hand specimen identification of igneous, sedimentary, and metamorphic rocks. One lec and one 2-hr lab per wk; two 1-day field trips. Prereq: 101, 102.

Geol **299** (s) **Directed Study** (cr arr). Prereq: perm.

Geol **301 Field Geology and Report Writing** (6 cr). Same as GeolE 301. Field problems and methods; use of instruments; interpretation of field data; preparation of reports based on field observations and interpretations. Three field trips taken away from campus. Accident and health insurance required. Prereq: 345 or perm.

Geol **315 Invertebrate Paleontology** (3 cr). Morphology, evolutionary trends, and classification of invertebrate fossil groups. Two lec and one 3-hr lab per wk; one 2-day field trip. Prereq: 101-102, or 106-107, or perm.

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: 101-102 or 106-107 or Geog 100 or perm.

Geol **345 Structural Geology** (1-3 cr). Deformed rocks; mechanics of failure, recognition, description, classification, and genesis of folded and fractured rocks. Two lec and one 2-hr lab per wk; one 2-day field trip. Prereq: 101, 102.

Geol **365 Igneous and Metamorphic Rocks** (2 cr). Petrology of igneous and metamorphic rocks. Two 2-hr labs per wk; two 1-day or one 2-day field trips. Prereq: 255, 265, and Chem 112 or 114.

Geol **400** (s) **Seminar** (cr arr). Prereq: perm.

Geol **405 Earth Science** (4 cr). Earth and its place in the solar system, processes responsible for changes; intended primarily for earth science teaching majors and minors. Three lec and one 2-hr lab per wk; two 1-day field trips. Prereq: 101, 102, or Geog 100, or equiv.

Geol **409 Ground Water** (3 cr). Same as GeolE 409. Occurrence, movement, and properties of subsurface water; intro to groundwater geology and hydrology. Two lec and one 2-hr lab per wk; one 1-day field trip. Prereq: 101, 102, and Math 111 or 140.

Geol **417 Advanced Paleontology** (3 cr). Fossil assemblages of different ages and environments; sequence of floras and faunas through time. Three 2-hr labs per wk; one 1-day field trip. Prereq: 315 or perm.

Geol **425 Sedimentology** (2 cr). Environments and processes responsible for separation of clastic and nonclastic sedimentary rock materials; roles of transportation, deposition, including siltation, and lithification. Two 2-hr labs per wk; one 1-day field trip. Prereq: 265.

Geol **426 Stratigraphy** (2 cr). Description, classification, distribution, and correlation of layered rocks; significance of stratigraphic analysis and geologic history. Two 2-hr labs per wk; one 2-day field trip. Prereq: 425.

Geol **449 Geology of Industrial Rocks and Minerals** (2 cr). Classification, occurrence, origin, preparation, extraction, use, and economy of chiefly nonmetallic rocks and minerals of major importance to a nation's industries. Prereq: 265.

Geol **465 Optical Mineralogy** (2 cr). Optical crystallography; identification of minerals by optical means. Two 2-hr labs per wk. Prereq: 255.

Geol **467 Petrography** (2 cr). Description and classification of rocks by thin-section study. Two 2-hr labs per wk. Prereq: 365, 465.

Geol **475 Mineral Deposits** (4 cr). Occurrence, classification, and origin of metallic and nonmetallic economic mineral deposits. Three lec and one 3-hr lab per wk; one 3-day field trip. Prereq: 265, 345.

Geol **476 Exploration Geology** (3 cr). See GeolE 476.

Geol **ID485 Geochemical Exploration** (3 cr). Same as GeolE 485. Principles of geochemical techniques in prospecting for mineral deposits; design, execution, and interpretation of geochemical surveys. Two lec and one 3-hr lab per wk; two 1-day field trips. Prereq: Chem 112.

Geol **ID486 Principles of Geochemistry** (3 cr). Alt/yrs 76-77. Chemical concepts applied to geology and environmental problems. Prereq: 255, Chem 112.

Geol **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm of dept.

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 **ID515 Paleoecology** (3 cr). Alt/yrs 76-77. Same as Anthr ID573. Past environments; interrelations of physical and biological factors; changes in the physical environments of the past; their influence on distribution and evolution of organisms, including man.

Geol **ID516 Methods in Paleontology and Biostratigraphy** (3 cr). Methods of collection, preparation, illustration of paleontologic data; principles of systematic paleontology; statistical-graphic presentation of biostratigraphic and paleontologic information. One lec and two 2-hr labs per wk; one 5-day field trip.

Geol **WS520 Regional Stratigraphic Analysis** (3 cr). Alt/yrs 76-77. One lec and two 3-hr labs per wk. Prereq: course in stratigraphy.

Geol **525 Stratigraphic Paleobotany** (3 cr). Alt/yrs 77-78. Fossil floras and floral successions; taxonomic problems; geologic ranges and past distributions of plant taxa; paleoecological interpretations; methods and correlation and dating by fossil plants. One 1-day and one 2-day field trips.

Geol **526 Petrology of the Carbonate Rocks** (3 cr). Origin, classification, distribution, depositional environments, and diagenesis of modern and ancient carbonates; emphasis on petrographic analysis. Two lec and one 3-hr lab per wk; one 3-day field trip.

Geol **527 Petrology of Terrigenous Rocks** (3 cr). Origin, classification, depositional environments, and diagenesis of fragmental rocks, including low-rank metasedimentary rocks; emphasis on petrographic analysis. Two lec and one 3-hr lab per wk; one 3-day field trip.

Geol **546 Tectonics** (3 cr). Alt/yrs 76-77. Form, pattern, and evolution of large-scale units of the earth's crust.

Geol **WS550 Advanced Mineralogy** (3 cr). Elements of crystal chemistry and crystal physics. Prereq: 101, 102, and Chem 111.

Geol **WS551 Ore Microscopy** (3 cr). Alt/yrs 77-78. Identification of ore minerals using polarizing ore microscope; measurement of rotation properties; interpretation of ore textures; photomicrography; practical problems. Three 3-hr labs per wk. Prereq: 255, 475.

Geol **WS552 X-Ray Analysis in Geology** (3 cr). Internal symmetry of crystals; generation and use of X-rays in geological research; powder diffraction and X.R.F. spectrometry.

Geol **ID556 Electron Microprobe** (3 cr). Theory and application of the electron microprobe and scanning electron microscope in studying rock-forming minerals. Two lec and one 3-hr lab per wk. Enrollment limited to seven. Prereq: perm.

Geol **WS560 Advanced Igneous Petrology** (3 cr). Petrogenesis of igneous rocks. Two lec and one 3-hr lab per wk. Prereq: 465.

Geol **ID565 Metamorphism** (3 cr). Metamorphic minerals, rocks, processes, and facies; polymetamorphic rocks; recent developments in structural geometry. Two lec and one 3-hr lab per wk; one 2-day field trip. Prereq: 465.

Geol **566 Volcanic Geology** (3 cr). Alt/yrs 77-78. Volcanoes, volcanic activity, petrology of volcanic rocks, and regional problems in layered volcanic rocks. Two lec and one 2-hr lab per wk; one 3 ½-day and three 1-day field trips. Prereq: 465.

Geol **WS570 Metallic Mineral Deposits** (3 cr). Modern advances in the genesis of metallic mineral deposits of magmatic, hydrothermal, sedimentary, and metamorphic origin. Prereq: 475.

Geol **ID575 Advanced Mineral Deposits I** (3 cr). Alt/yrs 76-77. Ore mineralogy and fabric; sulfide phase equilibria.

Geol **ID576 Advanced Mineral Deposits I Laboratory** (1 cr). Alt/yrs 76-77. Identification of ore minerals; their textures, association, and paragenesis.

Geol **577 Advanced Mineral Deposits II** (3 cr). Alt/yrs 76-77. Modern concepts of the origin and geochemistry of metallic mineral deposits. Two lec and one 3-hr lab per wk; one 3-day field trip.

Geol **WS581 Mineral Equilibria** (3 cr). Principles and petrologic significance of phase equilibria in mineral systems. Prereq: course in metamorphic petrology.

Geol **WS583 Introductory Geochemistry** (3 cr). Alt/yrs 77-78. WSU 480. Chemistry of earth materials and processes. Prereq: Chem 111.

Geol **ID586 Advanced Geochemical Exploration** (3 cr). Alt/yrs 77-78. Theory and use of colorimetric and instrumental analytical methods in mineral exploration; primary and secondary dispersion patterns; endogenetic and exogenetic behavior of individual elements. Two lec and one 3-hr lab per wk. Prereq: ID485.

Geol **587 Instrumental Techniques in Geochemistry** (3 cr). Modern instrumentation, including X-ray fluorescence, gas chromatography, electron microprobe, atomic absorption, infrared and Mossbauer spectometry applied to geochemical problems. Two lec and one 3-hr lab per wk. Prereq: perm.

Geol **589 Water Resources Seminar** (1 cr). See Inter 589.

Geol **ID590 Photogeology** (3 cr). Manipulation and analysis of air photos for geologic information; photogrammetry; map preparation and interpretation of stereo vertical and oblique air photos, some in color. One lec and two 3-hr labs per wk. Prereq: 335, 345, or perm.

Geol **WS592 Interdisciplinary Research Topics in Geology** (3 cr, max 6). Advanced course given by more than one faculty across normal subject boundaries; examples: geochemistry of ore deposits, tectonics and magma origin.

Geol **WS593 Advanced Topics in Petrology** (3 cr, max 6). Formal advanced course in either ore petrology or igneous petrology, depending upon demand.

Geol **595 Geology-Oriented Environmental Problems** (2 cr). Same as GeolE 595. Directed reading and discussion of environmental problems related to natural geologic phenomena or artificial disruption of natural geologic conditions. Prereq: perm.

Geol **596 Advanced Photogeology** (3 cr). New research techniques in photogeology; use of special photographic and remote sensor imagery, such as color, infrared color, and multispectral scanner imagery, including satellite photos. One lec and two 3-hr labs per wk. Prereq: ID590 or perm.

Geol **597** (s) **Practicum** (cr arr). Prereq: perm.

Geol **598** (s) **Internship** (cr arr). Prereq: perm.

Geol **599** (s) **Research** (cr arr). Prereq: perm.

Geol **600 Doctoral Research and Dissertation** (cr arr).

Guidance and Counseling

Thomas O. Bell, Director, Div. of Teacher Education (301 Educ. Bldg.). Faculty: Thomas N. Fairchild, A. Jean Hill, Thomas E. Hipple (Chairman), Harold W. James, Donald J. Kees, O. E. Kjos, James D. Morris, Marilyn K. Murray, Brent M. Snow.

Guid **200** (s) **Seminar** (cr arr). Prereq: perm.

Guid **203** (s) **Workshop** (cr arr). Prereq: perm.

Guid **204** (s) **Special Topics** (cr arr).

Guid **299** (s) **Directed Study** (cr arr). Prereq: perm.

Guid **322 Vocational Guidance** (3 cr). Same as VocEd 322. Identification of individuals who can profit from vocational-technical education programs, information for realistic vocational and educational planning, adjustments in vocational education programs, occupational placement and adjustment, and follow-up procedures.

Guid **400** (s) **Seminar** (cr arr). Prereq: perm.

Guid **403** (s) **Workshop** (cr arr). Professional issues. Prereq: perm.

Guid **404** (s) **Special Topics** (cr arr).

Guid **420 Principles and Practices in Guidance** (3 cr). Nature of the guidance process and the services provided in pupil personnel work.

Guid **460 Occupational-Educational Information** (3 cr). Sources, dissemination, and uses of vocational and educational information. Two 1-day field trips.

Guid **499** (s) **Directed Study** (cr arr). Prereq: perm.

Guid **500 Master's Research and Thesis** (cr arr).

Guid **501** (s) **Seminar** (cr arr). Prereq: perm.

Guid **502** (s) **Directed Study** (cr arr). Prereq: perm.

Guid **503** (s) **Workshop** (cr arr). Professional issues. Prereq: perm.

Guid **520 Group Standardized Tests** (3 cr). Theories and group techniques of appraising individual characteristics, performance, and behavior; evaluation of group tests; collection and interpretation of data. Prereq: Psych 217 or perm.

Guid **523 Guidance Laboratory** (2 cr). Supervised school experience and simulation in cumulative records and reports, information, placement, and follow-up. Prereq: 420, 460.

Guid **525 Techniques of Counseling** (3 cr). Development of basic counseling techniques; case studies, role playing, and tape and video recordings.

Guid **527 Psychometric Assessments** (3 cr). Developmental assessment procedures used by counselors in various settings. Prereq: 520, 525.

Guid **560 Theories of Vocational Choice** (3 cr). Psychological, sociological, and economic foundation of vocational choice and adjustment. Prereq: 460 and perm.

Guid **561 Organization and Administration of Guidance Services**

(3 cr). Simulated planning, primarily for those who will be responsible for the guidance services in public school systems. Prereq: perm.

Guid **564 Group Counseling** (3 cr). Principles and techniques of counseling groups; didactic and lab learning experience. Prereq: 597 or perm.

Guid **565 Theories of Counseling** (3 cr). Consideration and evaluation of contemporary theories. Prereq: 525 and perm.

Guid **597** (s) **Practicum** (cr arr). Initial practica provide a minimum of 30 hrs of supervised experience in individual counseling in schools (elementary, junior-high, secondary, vocational-technical, community college, college) or in a public agency. Advanced practica include individual and group counseling procedures, field experience in a variety of settings, and a minimum of 30 hrs of supervised experience. Prereq: 525 and perm. Prereq for adv practica: 564 plus 3 cr in initial practicum and perm.

Guid **598** (s) **Internship** (cr arr). Primarily for advanced graduate students. Currently offered in counselor education, college student personnel services, school pupil personnel services, and school psychology. Prereq: perm.

Guid **599** (s) **Research** (cr arr). Prereq: perm.

Guid **600 Doctoral Research and Dissertation** (3 cr).

Health and Safety

Leon G. Green, Director, Div. of Health, Physical Education and Recreation (203 Mem. Gym.). Faculty: Dwaine J. Marten (Chairman), Hazel C. Peterson, Diane B. Walker.

H&S **110 Health Issues** (2 cr). Project approach to the health problems of the college student and the community.

H&S **150 Foundations of Health Science** (3 cr). Maintaining health; individual and public health.

H&S **200; 400; 501** (s) **Seminar** (cr arr). Prereq: perm.

H&S **203; 403; 503** (s) **Workshop** (cr arr). Prereq: perm.

H&S **204; 404** (s) **Special Topics** (cr arr).

H&S **245 Introduction to Athletic Injuries** (3 cr). Intro to athletic training; athletic trainer; recognition, evaluation, general care of athletic injuries; adhesive strapping.

H&S **288 First Aid** (2 cr). Emergency care of injuries resulting from accidents or illness; advanced Red Cross first aid card given.

H&S **299; 499; 502** (s) **Directed Study** (cr arr). Prereq: perm.

H&S **316 Elementary School Health Materials** (2 cr). For elementary classroom teachers.

H&S **349 Advanced Athletic Injuries** (3 cr). Indepth study of etiology symptoms and signs of sports-related injuries with diagnostic emphasis given to specific injuries of the extremities. Prereq: 245 or perm.

H&S **423 Health Education Methods** (3 cr). Special methods and materials for jr and sr high school levels.

H&S **440 Driver Education I** (3 cr). Special fee course. Methods, organization, and administrative techniques; development of habits, attitudes, knowledge, and skills. In addition to lec, 6-10 hrs of practicum required during semester. Prereq: valid driver's license and perm.

H&S **449 Driver Education II** (3 cr). Continuation of 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 required. Prereq: 440, valid driver's license, satisfactory driving record, and perm.

H&S **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

H&S **592 The School Health Program** (3 cr). For teachers and administrators. Well balanced health program; organization and administration; health services, healthful school living, and health instruction.

History

William S. Greever, Dept. Head (315 Admin. Bldg.). Faculty: Donald C. Baldridge, Willard Barnes, Robert W. Coonrod, William S. Greever, W. Kent Hackmann, Robert D. Harris, Raymond L. Proctor, Siegfried B. Rolland, Cynthia J. Schwenk, Fred H. Winkler.

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 required for registration in upper-division courses; exceptions by permission.

Hist **101-102 History of Civilization** (3 cr). Great civilizations; contributions to the modern world. Hist 101: to 1650. Hist 102: 1650 to present. Also offered by correspondence study.

Hist **111-112 Introduction to United States History** (3 cr). Political, diplomatic, economic, social, and cultural history; earliest times to the present. Hist 111: to 1877. Hist 112: 1877 to present. Also offered by correspondence study.

Hist **204** (s) **Special Topics** (cr arr).

Hist **271-272 History of England** (3 cr). Political, social, economic, and religious development of the British Isles. Hist 271: to 1714. Hist 272: 1714 to present. Also offered by correspondence study.

Hist **404** (s) **Special Topics** (cr arr).

Hist **411-412 American Colonial and Revolutionary History to 1789** (3 cr). Hist 411: foundations; political, intellectual, economic, and military history of the colonies to 1750. Hist 412: Great War for empire, independence and founding of new nation, confederation period, framing and adoption of the Constitution.

Hist **413 United States: Early National Period** (3 cr). Economic, political, constitutional, and social problems; nationalism and beginnings of sectionalism; 1789-1828.

Hist **414 United States: Sectionalism and Civil War** (3 cr). Jacksonian democracy, slavery, growing rift between sections, and Civil War; 1828-1865.

Hist **415 United States: Emergence of Industrial America** (3 cr). Reconstruction era, industrial development, and resulting problems; 1865-1895.

Hist **417-418 Twentieth-Century America** (3 cr). Evolution of 20th-century American policy, foreign and domestic. Hist 417: 1896 to 1929. Hist 418: 1929 to present.

Hist **423 Idaho and the Pacific Northwest** (3 cr). Political, economic, social development; earliest times to the present; emphasis on Idaho and Inland Empire. Also offered by correspondence study.

Hist **427-428 History of the Westward Movement** (3 cr). Westward migration of people, customs, and institutions of the U.S.; appropriating and developing wilderness to uses of man. Hist 427: U.S. east of the Mississippi River. Hist 428: west of the Mississippi River.

Hist **429-430 History of American Diplomacy** (3 cr). Hist 429: quest for diplomatic independence and emergence of the U.S. as a world power; 1783-1921. Hist 430: problems of the U.S. as a world power since 1921.

Hist **432 The Negro in American History** (3 cr). Same as AfrAm 432. African background, slave trade, and slavery; abolition movement; emergence of the Negro as a significant element in American cultural, political, and economic life; the current Negro revolution and its various ramifications.

Hist **433-434 Social and Cultural History of the United States** (3 cr). Growth of customs, traditions, and intellectual habits; American way of life from colonial times to the present. Hist 433: to 1865. Hist 434: 1865-1950.

Hist **435 Colonial Latin America** (3 cr). Iberian background; high Indian civilizations; European discovery and colonization; Spanish Imperial System; social and economic development; wars of independence.

Hist **438 Mexico Since Independence, Central America, and the Caribbean** (3 cr). Political, economic, social, and cultural development; search for stability; growth of nationalism.

Hist **439 National Latin America: The South American Republics** (3 cr). Political, economic, social, and cultural developments; search for stability; growth of nationalism.

Hist **440 Inter-American Relations** (3 cr). Diplomatic relations between American republics, including regional agreements and the problem of U.S. preponderance.

Hist **441-442 Greek and Roman History** (3 cr). Political, constitutional, social, and cultural history. Hist 441: Greece from the earliest times to Roman conquest. Hist 442: Rome from the earliest times to the end of the Western Empire.

Hist **446 Medieval Europe** (3 cr). Transition from classical Mediterranean civilization to medieval civilization, 400-1350 A.D.

Hist **447 Renaissance Europe** (3 cr). Europe in the later middle ages and the Renaissance, 1350-1520 A.D.; emphasis on the Italian Renaissance as a cultural epoch.

Hist **448 Reformation Europe** (3 cr). Protestant and Catholic Reformation in the 16th century and the wars of religion to 1648.

Hist **449 Early Modern Europe** (3 cr). European politics and society in the 17th and 18th centuries.

Hist **451 The French Revolution** (3 cr). Europe in the era of the French Revolution and Napoleon, 1789-1815.

Hist **452 Europe from Vienna to Versailles** (3 cr). Revolution and reform of the 19th century and international frictions culminating in irredentist and imperialist rivalries of WW I.

Hist **455-456 Recent Times** (3 cr). Europe and its impact on worldwide events. Hist 455: 1914 to 1939. Hist 456: World War II and postwar era.

Hist **457 History of the Middle East** (3 cr). Survey of the Middle East from the beginning of the Islamic period to the present; emphasis on modern period.

Hist **464 European Diplomatic History 1500-1914** (3 cr). Development of the European state system; struggle for control over central Europe; Near-Eastern question; diplomacy of imperialism; diplomatic background of World War I.

Hist **465-466 Social and Cultural History of Europe** (3 cr). Hist 465: 17th and 18th centuries; Baroque culture, the scientific revolution, and the Age of Enlightenment. Hist 466: 19th and 20th centuries; romanticism, nationalism, liberalism, and socialism.

Hist **467-468 History of Russia** (3 cr). Hist 467: Russian Empire in the 17th, 18th, and 19th centuries to 1894. Hist 468: Russia from the beginning of the reign of Nicholas II through the revolutions of 1905 and 1917, and the Soviet period to the present.

Hist **469 Modern France** (3 cr). French nation from 1815 through the De Gaulle era.

Hist **473 Tudor England** (3 cr). Royal prerogative versus representative government; rise of middle class; exploration and colonization; religious changes and conflicts; culture.

Hist **474 Stuart England** (3 cr). Royal prerogative versus representative government; rise of middle class; exploration and colonization; religious changes and conflicts; culture.

Hist **477 Georgian Britain, 1714-1830** (3 cr). Rule of the oligarchy; development of the Empire; wars against France; industrialization; Parliamentary Reform.

Hist **481 Japan, 1600-1890** (3 cr). Tokugawa institutions and thought; confrontation with West; Maiji Restoration; beginning of modernization.

Hist **482 Japan Since 1890** (3 cr). Rise as a world power; industrialization and urbanization; political and constitutional developments; militarism and totalitarianism; WW II; occupation and postoccupation periods.

Hist **483 China, 1800-1911** (3 cr). Foreign incursions; rebellions, reform, revolution, and resistance to change.

Hist **484 China Since 1911** (3 cr). Republican experiment and its failure; economic problems; international relations; rise and victory of the Chinese Communist Party.

Hist **495 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm of dept.

Hist **496 Theory and Practice of History** (3 cr). Survey of the history of historical writing; validity of history as a form of knowledge; methods of historical inquiry including recent quantitative approaches.

Hist **499** (s) **Directed Study** (cr arr). Prereq: perm.

Hist **500 Master's Research and Thesis** (cr arr).

Hist **501** (s) **Seminar** (cr arr). Normally offered in early modern European history, late modern European history, English history, American history, and history of the American west. Prereq: perm.

Hist **502** (s) **Directed Study** (cr arr). Normally offered in American foreign relations, American frontier, society and thought in America, Pacific Northwest, America before 1789, Negro in America, U.S.-Latin American relations, early modern England, Greek and Roman history, Middle Ages, Renaissance and Reformation, Age of Absolutism and the Revolutionary Era, 19th-century Europe, 20th-century Europe, evolution of Russia, evolution of France, society and thought in Europe, European foreign relations, hispanic America, modern Mexico, U.S. 1789-1828, U.S. 1828-1865, U.S. 1865-1895, U.S. since 1896, England and the Georgian Era. Prereq: perm.

Hist **504** (s) **Special Topics** (cr arr).

Hist **590 Introduction to Historical Research** (2 cr). Techniques in compiling a bibliography, assembling material, composition, interpretation, and historical criticism.

Hist **591-592 Historiography** (2 cr). Nature of history; major historians; ideas in history; philosophy of history; bibliography. Hist 591: American historians. Hist 592: European and British historians.

Hist **599** (s) **Research** (cr arr). Prereq: perm.

Hist **600 Doctoral Research and Dissertation** (cr arr).

Home Economics

Marie K. Carano, Director, School of Home Economics (108 Mary Hall Niccolls Home Ec. Bldg.). Faculty: Gladys I. Bellinger, Marie K. Carano, Rose L. Forbes, Arlene T. Jonas, Rowen C. Jones, Elizabeth M. Kessel, Shirley O. Kiehn, Shirley R. Medsker, Laura J. Miller, Shirley A. Newcomb, Leila S. Old, Gretchen L. Potter, Ruth W. Spidahl, Geraldine S. Stevenson.

HEc **109 Introduction to Home Economics** (0 cr). Orientation to home economics as a career; the founders, professional contributors, and literature. Graded on the basis of P or F.

HEc **113 Art** (3 cr). Art and crafts for home and community. One lec and two 3-hr labs per wk.

HEc **123 Textiles** (3 cr). Properties of natural and synthetic fibers, yarns and fabric structure, dyes and finishes, labeling, legislation, and trade conditions affecting the consumer.

HEc **124 Clothing** (3 cr). Principles of clothing construction and fitting; analysis and comparison of techniques related to efficiency, wear, appearance, fabric limitations, emphasis on self-evaluation and time management. One lec and six hrs of lab per wk.

HEc **170 Family Nutrition and Meal Management** (2 cr). Open to men and women; primarily for nonmajors. Basics. One lec and one 3-hr lab per wk.

HEc **200** (s) **Seminar** (cr arr). Prereq: perm.

HEc **203** (s) **Workshop** (cr arr). Prereq: perm.

HEc **204** (s) **Special Topics** (cr arr).

HEc **229 Clothing Analysis** (2 cr). Factors affecting the selection of adult clothing; means of expressing individuality in the wardrobe.

HEc **234 Introduction to Child Development** (2 cr). Development and guidance of the preschool child. One lec and two hrs of supervised nursery school observation per wk.

HEc **236 Preschool Observation Analysis** (1 cr). Interpretation of the literature and analysis of preschool observations.

HEc **242 Household Equipment** (3 cr). Selection, use, and care. Two lec and one 3-hr lab per wk.

HEc **270 Nutrition** (3 cr). Open to nonmajors. Food selection and the daily diet; variations from the normal diet necessitated by difference in age, health, and environmental conditions; inborn errors of metabolism and dietary treatment; obesity, malnutrition, over-nutrition, food fads, additives, and nutrition for athletes.

HEc **271 Foods** (3 cr). Basic principles and fundamental nature of ingredients in food preparation. Two lec and one 3-hr lab per wk. Prereq: 3-6 cr in physical science courses.

HEc **272 Food Management** (2 cr). Food preservation, marketing, table service, meal planning, and food preparation techniques. One lec and one 3-hr lab per wk. Prereq: 271.

HEc **299** (s) **Directed Study** (cr arr). Prereq: perm.

HEc **314 Weaving** (3 cr). Principles, techniques, and aesthetics of handweaving. One lec and six hrs of lab per wk.

HEc **324 Flat Pattern Study** (3 cr). Fitting and pattern alteration for individualized shell and sloper; flat pattern design; construction related to original patterns. One lec and six hrs of lab per wk. Prereq: 124.

HEc **326 Housing and Home Furnishings** (3 cr). Housing principles, furniture, materials, and color in the present day home. Two lec and three hrs of lab per wk; one field trip.

HEc **327 Tailoring** (3 cr). Alt/yrs 77-78. Textile selection for tailored garments; comparative study of tailoring techniques. One lec and six hrs of lab per wk. Prereq: 124.

HEc **329 History of Costume and Textiles** (3 cr). Alt/yrs 77-78. Costume as an expression of the times. Prereq: 229.

HEc **334 Child Development** (3 cr). Principles of development in infants and children. Two lec and supervised nursery school experience equiv to one 3-hr lab per wk. Also offered by correspondence study. Prereq: Psych 100, Soc 110, or perm.

HEc **340 Family Relations** (3 cr). Interpersonal relationships throughout the family life. Also offered by correspondence study. Prereq: Psych 100, Soc 110 or perm.

HEc **346 Principles of Home Management** (2 cr). Open to nonmajors by perm. Analysis of resources in meeting family goals; time and money management; work simplification; emphasis on decision-making and evaluation as family processes.

HEc **347 Home Management House Residence** (3 cr). Management; emphasis on relationships and decison-making. Residence 4-8 wks. Advance reservation with dept required. Prereq: 272 and perm of dept; prereq or coreq: 346.

HEc **349 Home Management for Married Students** (3 cr). Comparable to 347 for homemakers or students with special dietary or other problems. Prereq: 272; prereq or coreq: 346.

HEc **352 Methods in Teaching Home Economics** (3 cr). Techniques and materials for secondary schools; lesson plan development for homemaking classes. Field trip included. Prereq: developmental or educational psychology, VocEd 351, or perm.

HEc **370 Nutrition for the Elementary School** (2 cr). Primarily for elem school teachers and student teachers. Fundamentals of nutrition and methods of teaching nutrition in elem grades.

HEc **371 Diet Therapy** (5 cr). Intro to medical terminology; principles and practice in the dietary care of the hospital patient; modification of the normal diet to meet needs of adults and children in disease and convalescence; clinical experience in Gritman Hospital, Moscow. One lec and six hrs of lab per wk. Prereq: 270 and Zool 119.

HEc **372 Clinical Dietetics** (10 cr). Supervised clinical experiences in hospital dietetics in Spokane hospitals. Five hrs of lec and twenty hrs of lab per wk for fourteen wks. Prereq: 371.

HEc **373 Community Nutrition** (4 cr). Nutrition programs and their service to the community with particular reference to the nutrition problems of special groups within the population; clinical experiences in Moscow, Id. One lec and three hrs of lab per wk. Prereq: 270 and 272 or perm.

HEc **384 College Food Systems Management** (5 cr) (484). Management in food service systems emphasizing quality food production and planning; work organization, quality control, and buying for institutions; quantity food preparation for regular and modified diets; lab experiences in university food service. Five lec and twelve hrs of lab per wk for nine wks. Prereq: 271 and 272 or perm.

HEc **400** (s) **Seminar** (cr arr). Prereq: perm.

HEc **403** (s) **Workshop** (cr arr). Prereq: perm.

HEc **404** (s) **Special Topics** (cr arr).

HEc **409 Trends and Perspectives in Home Economics** (1 cr). Literature, professional role, leaders, concerns, issues, and trends.

HEc **413 Textile Design** (2 cr). Alt/yrs 77-78. History of design and production of fabrics as an expression of man's cultural achievement; textile design applied to rugs, upholstery and drapery fabrics; experience in media for textile design. One lec and one 3-hr lab per wk. Prereq: 113.

HEc **423 Advanced Textiles** (3 cr). Textile performance and problems involving recent development in textile products. Two lec and one 3-hr lab per wk; one field trip. Prereq: 123.

HEc **424 Original Design** (3 cr). Alt/yrs 76-77. Design, rendering, and construction of apparel; emphasis on contemporary environment. One lec and six hrs of lab per wk. Prereq: 324, 329, 429.

HEc **426 History of Interiors and Furnishings** (3 cr). Alt/yrs 76-77. History and development of styles and design in furniture and interiors as expressions of changes in art and culture. Prereq: 326 or perm.

HEc **428 Family Housing** (2 cr). Housing for contemporary living; family life cycles, socioeconomic aspects of family housing, site selection, floor plans, building materials, and outside environment. One lec and three hrs of lab per wk.

HEc **429 Social-Psychologiclal Aspects of Clothing** (2 cr). Alt/yrs 76-77. Clothing in relation to culture, human behavior, aesthetics, the economy, and the physical self. Prereq: 229, Psych 100, Soc 110, or perm.

HEc **433 Preschool Resources** (2 cr). Professional organizations, methods, resources, and research facilities in U.S. and internationally. Prereq: perm.

HEc **434 Preschool Participation** (6-9 cr, max 9). Active participation in the preschool lab; application of child development theory, direction and preparation of preschool curriculum. Prereq: jr standing or perm.

HEc **435 History and Philosophy of Child Development** (2 cr). One field trip. Prereq: 234 or 334, or Soc 110 and Psych 100.

HEc **436 Current Theories in Child Development** (3-4 cr). Educational, psychological, and sociological theories of child development.

HEc **442 Current Developments in Household Equipment** (2 cr). Available space and selection of functional equipment; materials, construction, operation, care, and relative cost. Prereq: 242.

HEc **448 Consumer Education** (3 cr). Consumer motivation and behavior, protection, information, organizations, use of credit, and selected problems in consumer decison-making.

HEc **455 Problems in Teaching Homemaking and Adult Education** (3 cr). Analysis, organization, implementation, and evaluation of homemaking programs for youth and adults; orientation to the nature and scope of the student's teaching role. Field trip. Prereq: 352.

HEc **457 Student Teaching in Home Economics Classes** (9 cr, max 9). Supervised teaching at secondary-school level. Apply to home economics teacher educator one semester prior to registration. Prereq: cumulative GPA of 2.25; HEc GPA of 2.50; HEc 352; acceptance into teacher education program; sr standing.

HEc **458 Cooperative Extension Practicum** (9 cr). Observation of, and participation and supervised teaching experience with, an extension home economist in a selected county. Intensive 9-wk summer program. Prereq: cumulative GPA of 2.25; HEc GPA of 2.50; jr or sr standing; perm.

HEc **460 Family as an Ecosystem** (3 cr). Survey of the literature and discussion of environmental factors affecting contemporary families; analysis of the interrelationship of social change, and family values, structure, roles on the ecological system; determination of the role and potential contribution of family life to ecology.

HEc **470 Problems in Nutrition** (3 cr). Recent advances; emphasis on investigation of infant, child, and adult nutrition. Also offered by correspondence study. Prereq: 270, Zool 119, sr or grad standing.

HEc **472 Clinical Dietetics** (12 cr) (473). Clinical experience which follows 372. Continuation of 372 with students assuming more responsibility. Work directly with professionals and patients in Spokane hospitals and public health facilities. Five-six hrs of lec and fifteen hrs of lab per wk for fourteen wks. Prereq: 371 or 372.

HEc **474 Investigation of Foods** (3 cr). Advanced problems in foods. Two lec and three hrs of lab per wk. Prereq: 272 or perm.

HEc **475 Nutrition Principles for the Classroom Teacher** (3 cr). For elem and secondary teachers. Teaching food selection and daily diet; variations from the normal diet due to age, environmental conditions, and metabolism; malnutrition, overnutrition, food fads, additives, obesity, and nutrition for athletes.

HEc **478 Recent Advances in Foods** (2 cr). Topics in food preservation and processing; development of low calorie foods and commercial mixes; food additives. Prereq: 271 or equiv.

HEc **484 Hospital Food Systems Management** (10 cr). Management experiences in Spokane hospitals, including food preparation, service, nourishments, cafeteria, and supervision; special project in some area of management. Five hrs of lec and ten hrs of lab per wk for fourteen wks. Prereq: 384.

HEc **487 Dietetics Practicum** (8 cr, max 8). Supervised practicum in hospitals, clinics, and public health agencies. Prereq: perm.

HEc **499** (s) **Directed Study** (cr arr). Prereq: perm.

HEc **500 Master's Research and Thesis** (cr arr).

HEc **501** (s) **Seminar** (cr arr). Prereq: perm.

HEc **502** (s) **Directed Study** (cr arr). Prereq: perm.

HEc **503** (s) **Workshop** (cr arr). Prereq: perm.

HEc **504** (s) **Special Topics** (cr arr).

HEc **540 Parent-Child Relationships** (2 cr). Open to nonmajors. The developing family; patterns of child rearing. Prereq: 334, 340, and six cr in psych and/or soc or equiv.

HEc **546 Problems in Home Management** (2 cr). Selected topics. Prereq: 346 or equiv.

HEc **551 Techniques of Supervision** (2 cr).

HEc **553 Home Economics Education** (1-4 cr, max 4).

HEc **554 Curriculum in Home Economics** (2 cr). Problems and planning in secondary-school homemaking education.

HEc **570 Current Concepts in Nutrition** (2 cr). Innovative concepts and special techniques in nutrition research; current scientific investigations; present-day nutrition problems. Prereq: 470, Zool 119, or equiv.

HEc **583 Recent Trends in Institutional Management** (2 cr). Management principles applied to food service institutions.

HEc **597** (s) **Practicum** (cr arr). Prereq: perm.

HEc **598** (s) **Internship** (cr arr). Supervised internship in educational institutions, government/social agencies, hospitals, or industry; geared to the educational and vocational goals of students. Prereq: perm.

HEc **599** (s) **Research** (cr arr). Prereq: perm.

Hydrology

George A. Williams, Head, Dept. of Geology (211 Mines Bldg.). Faculty: Dale R. Ralston, Roy E. Williams.

Hydro **500 Master's Research and Thesis** (cr arr).

Hydro **501** (s) **Seminar** (cr arr). Prereq: perm.

Hydro **502** (s) **Directed Study** (cr arr). Prereq: perm.

Hydro **503** (s) **Workshop** (cr arr). Prereq: perm.

Hydro **563 Geohydrology** (3 cr). Same as GeolE 563. 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. Prereq: Geol 409, Math 200, or perm.

Hydro **566 Geochemistry of Ground Water** (3 cr). Nature and origin of dissolved constituents in ground water; modification of ground water quality through mineral processes and by human activities. Two lec and one 2-hr lab per wk. Prereq: Geol 409 or perm.

Hydro **567 Hydrometeorology** (3 cr). Exchange of water between the atmosphere and the lithosphere or hydrosphere; factors influencing areal and temporal distribution, evapotranspiration, and micrometeorology; instrumentation techniques and theory. Two lec and one lab per wk.

Hydro **568 Advanced Geohydrology** (3 cr). Analysis of problems which have confronted the geohydrologist since the inception of quantitative methods. Prereq: 563.

Hydro **569 Application of Hydrogeological Concepts** (3 cr). Application of hydraulic and chemical characteristics of well and aquifer systems to practical field problems.

Hydro **597** (s) **Practicum** (cr arr). Prereq: perm.

Hydro **598** (s) **Internship** (cr arr). Prereq: perm.

Hydro **599** (s) **Research** (cr arr). Prereq: perm.

Industrial Education

Thomas O. Bell, Director, Div. of Teacher Education (301 Educ. Bldg.). Faculty: Harold C. Amos (Metals), William R. Biggam, Richard R. Smith (Electronics, Plastics).

IEd **115 Introduction to Metals** (1 cr). Production and use of commercial metals and metal products.

IEd **ID130 Basic Electricity** (4 cr). See ET/EE 130.

IEd **ID131 Basic Electronics** (4 cr). See ET/EE 131.

IEd **R135 Electrical Systems** (3 cr). See ET/EE R135.

IEd **140 Wood Technics** (3 cr). Basic fabricating skills in machine and tool processing of wood material and products; technical information on a wide range of wood and allied products; selection and fabrication of wood products.

IEd **170 Wood Product Design and Fabrication** (3 cr). Principles of design applied to a wide variety of wood products and fabrication processes: furniture and cabinetwork, laminated products, molding, wood turning, silicon rubber mold production. Prereq: 140.

IEd **200** (s) **Seminar** (cr arr). Prereq: perm.

IEd **203** (s) **Workshop** (cr arr). Prereq: perm.

IEd **R210 Introduction to Industrial Efficiency** (3 cr). Industrial engineering techniques and approaches particularly relevant to the industrial supervisor.

IEd **R211 Introduction to Quality Assurance** (3 cr). Overview of quality assurance; special emphasis on nuclear industry; planning, managing, conducting, and evaluating quality assurance programs.

IEd **R212 Elements of Quality Assurance** (3 cr). Continuation of R211.

IEd **R213 Principles of Dimensional Inspection** (3 cr). Concepts,

principles, classification, and control in dimensional inspection for quality assurance.

IEd **R214 Interpretation of Engineering Drawings and Specifications** (3 cr). System of conveying technical directions by means of engineering drawings and specifications; development of an evaluative capability for approving and incorporating the requirements contained in these documents into QA documents and activities.

IEd **R215 Electronic Components** (3 cr). See ET/EE 215.

IEd **R222 Mechanical Engineering Drawing** (2 cr). See ET/ME R222.

IEd **235 Communication Electronics** (4 cr). See ET/EE 235.

IEd **236 Industrial Electronics** (4 cr). Continuation of 235. Theory and test procedures common to industrial control and automatic processing; computer electronics. Prereq: 235.

IEd **R240 Electronics and Control Systems** (3 cr). See ET/EE R240.

IEd **R245 Minicomputer Fundamentals** (3 cr). See ET/EE R245.

IEd **250 General Metals** (3 cr). Materials, machines, and fabricating processes; methods and techniques of fabricating products from perforated and expanded metal, aluminum, wrought iron, mild steel, and galvanized iron.

IEd **251 Plastics** (2 cr). Materials and industrial methods of fabrication; vacuum, blow, and pressure forming; laminating; extrusion; plastisol and injection molding.

IEd **253 Materials and Processing Laboratory I** (3 cr). Use and application of machines and processes in fabricating metal and metal products. Prereq: 115, Engr 101, 102, and perm.

IEd **254 Materials and Processing Laboratory II** (2 cr). Theory and practice of patternmaking and casting; foundry and fabricating materials and techniques. Prereq: 253.

IEd **270 Technical Competence** (1-12 cr, max 12). Cr awarded for technical competence gained from work experience in area of concentration for degree being sought. 270, 370, and 470 are graded on the basis of P or F and are credited to the student's program as follows: 1/3 with soph-level standing and completion of 15 cr of formal course work in the program; 1/3 upon completion of the jr yr; and 1/3 upon completion of all other degree requirements. Max thirty-six cr in any combination of 270, 370, 470, 490, 491, and 492.

IEd **280 Building Construction Technology** (3 cr). Systems approach to building construction technology, including the following systems: footings and foundations, floor, wall, ceiling and roof; a study of building materials and their use in building construction. Prereq: 140, 170.

IEd **290 Industrial Arts Crafts** (2 cr). Alt/yrs 76-77. Creative craftwork in leather, Keene cement, metal tooling, metal enameling, craft plastics, and mosaic tile.

IEd **299** (s) **Directed Study** (cr arr). Prereq: perm.

IEd **300 Finishing Materials and Methods** (2 cr). Alt/yrs 76-77. Methods and materials relative to finishing wood, metal, composition board, plastics, and other industrial products.

IEd **303 Advanced Machine Tool Laboratory** (2-3 cr). Practice in fabrication of metals beyond that covered in 253-254; extra cr for individual project. Charge for materials payable at Controller's Office. One lec and one 3-hr lab per wk. Prereq: 254 or perm.

IEd **310 Maintenance of Tools and Equipment** (3 cr). Selection, care, and maintenance of hand tools and machines common to industrial arts and vocational-technical shops. Prereq: 170 or perm.

IEd **315 Industrial Design** (2 cr). Alt/yrs 77-78. Planning, designing, and fabricating products from a variety of industrial materials; period furniture and principles of product design. Prereq: 170 or perm.

IEd **WS316 Power Technology** (3 cr). Power sources and mechanisms; classroom applications.

IEd **R320 Electronic Drafting** (3 cr). See ET/EE R320.

IEd **R330 Industrial Instrumentation I** (3 cr). See ET/EE R330.

IEd **R331 Industrial Instrumentation II** (3 cr). See ET/EE R331.

IEd **R332 Selection and Design of Machine Elements** (3 cr). See ET/ME R332.

IEd **R333 Computer Electronics** (3 cr). See ET/EE R333.

IEd **R334 Energy Analysis of Machines** (3 cr). See ET/ME R334.

IEd **R335 Materials Application** (3 cr). See ET/ME R335.

IEd **R336 Fluid Systems Design** (3 cr). See ET/ME R336.

IEd **R337 Tool Design** (3 cr). See ET/ME R337.

IEd **R340 Nondestructive Examination Techniques and Methods** (3 cr). Intro to nondestructive testing, liquid penetrant examination, magnetic particle examination, and radiography in modern industry.

IEd **365 Industrial Supervison** (2-3 cr). Alt/yrs 76-77. Principles and practices; duties and responsibilities of the industrial plant supervisor; use of rating scales and other employee evaluating devices; supervisory methods utilized in on-the-job training and in-plant training programs; methods of conducting job analysis; preparation and use of job descriptions and specifications.

IEd **370 Technical Competence** (1-6 cr, max 12). See IEd 270.

IEd **375 Heat Treatment of Metals** (2 cr). Properties of metals, annealing and normalizing, hardening, tempering, surface hardening, stress relief of welds; equipment and methods. One lec and one 3-hr lab per wk. Prereq: perm.

IEd **400** (s) **Seminar** (cr arr). Prereq: perm.

IEd **403** (s) **Workshop** (cr arr). Consult the time schedule for the complete title and the length of each workshop when offered. Prereq: perm.

IEd **405 Advanced Woodwork** (3 cr). Alt/yrs 76-77. Design and construction of wood products; use of fixtures. jigs, and templates; structural details of cabinet construction; fastening devices; materials and processes. Prereq: 140, 170, or perm.

IEd **410 Advanced Metals** (3 cr). Alt/yrs 77-78. Materials, tools, and processes of metal technology; students may specialize in one or several areas. Prereq: 250 or perm.

IEd **WS416 Automotive Technology** (3 cr). Theoretical and applied technology to broad aspects of automotive transportation; power plant theory, drive train function, automotive electronics, chassis design and capability; design, construction, and structural materials used in automotive body function. Prereq: WS316.

IEd **420 Evaluation in Industrial Education** (3 cr). Same as VocEd 420. Methods and techniques; construction and use of objective-type tests, performance tests, rating scales, check lists, and grading industrial products and projects.

IEd **R424 Computer Hardware Organization and Control** (3 cr). Utilization and arithmetic and related hardware; timing and control of computers; description of computer hardware/software interface.

IEd **425 Advanced Electricity-Electronics** (4 cr). Independent readings, research, and lab experimentation. Prereq: 235, 236, or perm.

IEd **R431-R432 Reactor and Nuclear Instruments** (3 cr). Nuclear electronics including detection; application of instruments for reactor control and for experimental data acquisition.

IEd **R433 Quality Assurance Applications** (3 cr). Principles of quality assurance applied in a morphological manner to industrial operations.

IEd **R434 Quality Assurance Organization and Management** (3 cr). Industrial management principles as they apply to the effective economic control of quality assurance activities.

IEd **R445 Digital Process Control** (3 cr). Application of digital computers for process control; utilization of digital control circuits and comparison of digital and analog signals; multiple computer control.

IEd **450 Industrial Safety** (3 cr). Same as VocEd 450. Organization and administration of safety programs in industry and vocational-technical education shops; materials, research, literature, methods, and techniques relative to industrial safety education.

IEd **451 School Shop Planning and Administration** (3 cr). Same as VocEd 451. Technical shops and labs; selecting, purchasing, and storage of shop supplies and equipment; organizing a shop personnel system; implementing shop safety programs; maintaining shop records.

IEd **460 Industrial Education for Elementary Teachers** (3 cr). Common hand tools and processes useful in developing creative craft programs in elementary-school classes; project work in wood, metals, plastics; correlation and integration of manual activities with instruction in elementary-school subjects.

IEd **462 Industrial Education Curriculum** (3 cr). Same as VocEd 462. Principles of occupational analysis and course construction; subject content; state curriculum patterns; special education programs; trends and new concepts.

IEd **470 Technical Competence** (1-6 cr, max 12). See IEd 270.

IEd **472 Industrial Education Methods** (3 cr). Same as VocEd 472. Particularized to industrial education and technical education subjects; demonstration, lecture, and problem solving; construction and use of instructional aids; preparation and use of individual instruction sheets and programmed instructional material.

IEd **480 History and Philosophy of Industrial Education** (3 cr). Development of vocational and general education phases of industrial education; comparative and conflicting philosophies; leaders and their contributions.

IEd **490-491-492 Advanced Technical Competence** (1-12 cr, max 36). Supervised practicum or on-the-job work experience designed to enable the student to gain further depth in technical competence as well as in current industrial technology. Max thirty-six cr in any combination of 270, 370, 470, 490, 491, and 492.

IEd **499** (s) **Directed Study** (cr arr). Prereq: perm.

IEd **500 Master's Research and Thesis** (cr arr).

IEd **501** (s) **Seminar** (cr arr). Prereq: perm.

IEd **502** (s) **Directed Study** (cr arr). Prereq: perm.

IEd **503** (s) **Workshop** (cr arr). Prereq: perm.

IEd **510 Professional Problems** (1-3 cr, max 6). Prereq: perm.

IEd **511 Technical Problems** (1-3 cr, max 6). Prereq: perm.

IEd **530 Administration and Supervision of Industrial Education Programs** (3 cr). Principles and practices; secondary-school and post-high-school levels; federal and state legislation regarding industrial education programs.

IEd **540 Instructional Media for Industrial Education** (3 cr). Preparation and use of new instructional media and systems for industrial-technical arts and technical-vocational subjects.

IEd **599** (s) **Research** (cr arr). Prereq: perm.

Information Science

Dale O. Everson, Coordinator (30 Ag. Sci. Bldg.). Faculty; James E. Crandall, Donald Del Mar, Louis L. Edwards, Jr., Dale O. Everson, Donald F. Haber, Edward L. Kelly, Gary A. Lynch, Gary K. Maki, Victor E. Montgomery, Charles K. Nelson, Clarence J. Potratz, Anthony L. Rigas, Ping-Tsoong Sun, Joe E. Thomas, Robert L. Turner, Ya-Yen Wang.

Courses in this subject area are under the general jurisdiction of the University Curriculum Committee and its Subcommittee on Information Science.

COMPUTER SCIENCE

InfSc **131 Digital Computer Programming** (1-2 cr). See Engr 131.

InfSc **133 Introduction to Computer Information Systems** (2 cr). See Bus 133.

InfSc **205 Introduction to Computer Programming** (3 cr). See Math 205.

InfSc **234 Advanced Fortran Programming** (2 cr). See Engr 234.

InfSc **305 Computer Organization and Programming** (3 cr). See Math 305.

InfSc **333 Introduction to COBOL** (2 cr). See Bus 333.

InfSc **R400** (s) **Seminar** (cr arr). Prereq: perm.

InfSc **402 Applied Numerical Methods** (3 cr). See ES 402.

InfSc **433-434 Numerical Analysis** (3 cr). See Math 433-434.

InfSc **439 Systems and Simulation** (2 cr). See Bus 439.

InfSc **440 Digital Systems Engineering** (3 cr). See EE 440.

InfSc **445 Computer Programming Systems** (3 cr). See EE 445.

InfSc **446 System Modeling and Simulation** (3 cr). See EE 446.

InfSc **R448 Advanced Assembler Language and Operating Systems** (3 cr). See EE R448.

InfSc **485 Structure of Programming Languages** (3 cr). See Math 485.

InfSc **487 Data Structures** (3 cr). See Math 487.

InfSc **R500 Master's Research and Thesis** (cr arr). Prereq: perm.

InfSc **R502** (s) **Directed Study** (cr arr). Prereq: perm.

InfSc **533 Automation Systems** (1 cr). See Bus 533.

InfSc **540 Switching and Finite Automata Theory** (3 cr). See EE 540.

InfSc **541 Design of Digital Computers and Computer Systems** (3 cr). See EE 541.

InfSc **542 Theoretical Models for Computation** (3 cr). See EE 542.

InfSc **R543 Teleprocessing Systems Design** (3 cr). See EE R543.

InfSc **545 Algorithms and Information Structures** (3 cr). See EE 545.

InfSc **554-555 Information Theory I-II** (3 cr). See EE 554-555.

APPLIED STATISTICS

InfSc **217 Introduction to Statistics for the Behavioral Sciences** (3 cr). See Psych 217.

InfSc **231 Statistics** (4 cr). See Bus 231.

InfSc **301 Engineering Statistics** (3 cr). See ES 301.

InfSc **320 Probability and Statistics** (3 cr). See Math 320.

InfSc **321 Biometry** (3 cr). See Ag 321.

InfSc **332 Quantitative Methods in Business** (3 cr) (232). See Bus 332.

InfSc **406 Statistical Research Methods** (3 cr). See Ag 406.

InfSc **418 Intermediate Statistics for the Behavioral Sciences** (3 cr). See Psych 418.

InfSc **433-434 Numerical Analysis** (3 cr). See Math 433-434.

InfSc **435 Operations Research I: Linear Programming** (2 cr). See Bus 435.

InfSc **437 Statistics for Business Decisions** (2 cr). See Bus 437.

InfSc **438 Intermediate Managerial Statistics** (2 cr). See Bus 438.

InfSc **451-452 Probability Theory and Mathematical Statistics** (3 cr). See Math 451-452.

InfSc **453 Operations Research II: Queueing Theory** (1 cr). See Bus 453.

InfSc **454 Operations Research III: Game Theory** (1 cr). See Bus 454.

InfSc **455 Integer, Nonlinear, and Dynamic Programming** (1 cr). See Bus 455.

InfSc **456 Quality Control** (2 cr). See Bus 456.

InfSc **457 Operations Research IV: Nonparametric Statistics** (1 cr). See Bus 457.

InfSc **494 Models for Resource Decisions II** (3 cr). See FWR 494.

InfSc **R505 Engineering Statistics** (1-3 cr). See ES R505.

InfSc **507 Experimental Design** (3 cr). See Ag 507.

InfSc **532 Dynamics of Business Decisions** (3 cr). See Bus 532.

InfSc **R547 Applied Time Series Forecasting** (3 cr). See EE R547.

Interdisciplinary Studies

Elmer K. Raunio, Coordinator (112 Admin. Bldg.).

COURSES IN THIS SUBJECT AREA are under the general jurisdiction of the University Curriculum Committee and its Subcommittee on Interdisciplinary Studies.

Inter **101 Man in a Nuclear Age** (2 cr). Same as SocSc 101. Concerns about man and his environment presented by leading university authorities in such fields as foreign policy, nuclear physics, ecology, psychology, urban affairs, cybernetics, and race relationships.

Inter **200; 300; 400; 501** (s) **Seminar** (cr arr). Each seminar under these numbers is offered jointly by two or more departments and has been approved by the University Curriculum Committee. Prereq: perm.

Inter **203 Environmental Pollution** (3 cr). See Ag 203.

Inter **204; 404; 504** (s) **Special Topics** (cr arr).

Inter **299; 399; 499; 502** (s) **Independent Study** (cr arr). Projects which have been approved by two or more departments and by the University Curriculum Committee. Prereq: perm.

Inter **394 Technology and Societal Decisions** (3 cr). See Engr 394.

Inter **438 Pesticides in the Environment** (2 cr). See Ent 438.

Inter **490 Technology and Human Values** (2-3 cr). Same as RelSt 490. Ideological and value implications of technology for the future of man and his environment.

Inter **493-494 Seminar in Urban Studies** (2 cr). Same as Arch, Bus, Econ, Geog, PolSc, or Soc 493-494. Interdisciplinary inquiry focusing on the analysis and alternative solutions to problems of communities, physical factors, transportation and communication, housing, planning business and industrial districts, zoning, aesthetics, socio-cultural and psychological factors, neighborhoods, local government and finance, urban renewal, regional planning, government programs, and dynamics of development; discussions led by faculty members and consultants.

Inter **500 Master's Research and Thesis** (cr arr).

Inter **503** (s) **Workshop** (cr arr).

Inter **580 Seminar in Administration and Contemporary Issues** (3 cr). Same as Bus, Ed, or PolSc 580. Interdisciplinary approach to complex problems confronting administrators in the fields of business, education, and government. Prereq: perm.

Inter **589 Water Resources Seminar** (1 cr). Same as AgE, CE, FWR, Geol, or GeolE 589. Reports by faculty members and graduate students on current problems and projects; reports are organized to give maximum interchange of ideas between divisions.

Inter **599** (s) **Research** (cr arr).

Journalism

Don H. Coombs, Director, School of Communication (214 Univ. Classroom Ctr.). Faculty: Bert C. Cross, Barbara B. Petura, Theodore E. Stanton, James K. VanLeuven.

Jour **121 News Writing** (3 cr). Basic principles of gathering and writing news, including developing news from a beat. Two 2-hr lec-labs per wk. Prereq: ability to type.

Jour **200; 400** (s) **Seminar** (cr arr). Prereq: perm.

Jour **203; 403** (s) **Workshop** (cr arr). Prereq: perm.

Jour **204; 404** (s) **Special Topics** (cr arr).

Jour **222 Reporting** (3 cr). Types and sources of news; gathering and writing news for newspaper and radio use. Two lec and one lab per wk. Prereq: 121.

Jour **224 Graphic Design I** (2 cr). See Art 224.

Jour **299; 499** (s) **Directed Study** (cr arr). Prereq: perm.

Jour **323 Public Affairs Reporting** (3 cr). Problems and practice in reporting the courts, government, politics, industry, education, and other public issues. Prereq: 121, 222, or perm.

Jour **354 News Editing** (3 cr). News selection, evaluation, editing, and display; responsibilities of copyreader. Two lec and one lab per wk. Prereq: 121, 222, or perm.

Jour **384 Publications Editing** (3 cr). Editing, illustration, layout, and design for magazines, periodicals, business publications, pamphlets, and brochures. Lec and lab. Prereq: perm.

Jour **405 Supervising High School Publications** (2 cr). For secondary-school teachers. Planning and direction of the newspaper and yearbook; teaching methods for journalism.

Jour **424 Interpretive Writing** (3 cr). In-depth writing on current affairs; investigative techniques; practice in writing editorials and columns. Prereq: 121, 222, or perm.

Jour **432 Feature Article Writing** (3 cr). Practice in feature article writing for specialized publications, newspapers, and magazines; popularizing scientific and technical information.

Law

Albert R. Menard, Dean (101 Law Bldg.). Faculty: Michael L. Beatty, George M. Bell, Dennis C. Colson, Darrell W. Dunham, W. Lee Eckhardt, Douglas L. Grant, Joann Henderson, Robert L. Jones, D. Craig Lewis, James S. Macdonald, Walter H. McLeod, Albert R. Menard, Philip E. Peterson, Arthur D. Smith, Jr., Norman Vieira, Sheldon A. Vincenti.

FOR COMPLETE DESCRIPTIONS of the courses in this section, see the annual an. ouncement of the College of Law. Registration in any course offered by the College of Law by nonlaw students requires permission in advance by the dean and the instructor of the course.

Law **805-806 Procedure I-II** (3 cr).

Law **807-808 Property I-II** (3 cr).

Law **809-810 Torts I-II** (3 cr; 2 cr).

Law **811 Fundamentals of Public Law** (2 cr).

Law **812 Criminal Law and Procedure** (3 cr).

Law **813-814 Contracts I-II** (3 cr).

Law **815-816 Legal Research and Writing I-II** (1 cr).

Law **901** (s) **Seminar** (cr arr).

Law **905 Constitutional Law and the Federal System I** (4 cr).

Law **906 Constitutional Law and the Federal System II** (3 cr) (909).

Law **907 Administrative Law** (3 cr).

Law **908 Labor Law** (2 cr).

Law **910 Antitrust and Trade Regulation** (3 cr).

Law **911 Municipal Corporations** (2 cr).

Law **912 Legislation** (2 cr).

Law **920 Business Associations** (4 cr).

Law **922 Corporate Securities** (3 cr).

Law **923 Commercial Paper** (2 cr).

Law **925 Sales and Secured Transactions** (3 cr).

Law **926 Creditor's and Debtor's Rights** (3 cr).

Law **927 Seminar, Business Planning** (2 cr).

Law **929 Consumer's Rights** (3 cr).

Law **930-931 Taxation I-II** (3 cr; 2 cr).

Law **932 Estate Planning** (4 cr).

Law **941 Wills, Estates, and Trusts** (3 cr).

Law **942 Natural Resources** (3 cr).

Law **943 Seminar, Real Estate Planning** (3 cr).

Law **944 Seminar, Land Use and Environmental Planning** (3 cr).

Law **945 Community Property** (2 cr).

Law **950 Evidence** (4 cr).

Law **952 Remedies and Restitution** (3 cr).

Law **953 Seminar, Criminal Procedure** (2 cr).

Law **954-955 Practice Court I-II** (1 cr).

Law **956 Appellate Court** (1-2 cr, max 3).

Law **960 Conflict of Laws** (3 cr).

Law **961 Seminar, Jurisprudence** (2 cr).

Law **962 Professional Responsibility** (1 cr).

Law **963 Family Law** (2 cr).

Law **981 Legal Aid** (2 cr).

Law **982 Law Review** (1-3 cr, max 3).

Law **983 Legal Research** (1-2 cr, max 4).

Library Science

Thomas O. Bell, Director, Div. of Teacher Education (301 Educ. Bldg.). Faculty: Ruth A. Krukar.

LibSc **299; 499** (s) **Directed Study** (cr arr). Prereq: perm.

LibSc **400** (s) **Seminar** (cr arr). Prereq: perm.

LibSc **404** (s) **Special Topics** (cr arr).

LibSc **420 Classification and Cataloging** (4 cr). Organization of library materials; principles of cataloging, subject analysis, classification, bibliographical methods, Dewey decimal system.

LibSc **421 Selection of Books and Related Materials** (3 cr). Evaluation and selection of books and other materials for libraries; analysis of community library needs and interests.

LibSc **422 Use of the School Library** (2 cr). Methods of interesting students in the library and using it to best advantage.

LibSc **423 Reference in School Libraries** (3 cr). Reference books in school and public libraries; judging and selecting reference collections.

LibSc **425 School Library Problems** (2-4 cr, max 4). Organization and management of school libraries.

LibSc **427 Library and Media Center Practicum** (1-3 cr, max 6). Practical experience through work in libraries and other information centers under professional supervision. Prereq: perm of dept.

Mathematics

Howard E. Campbell, Dept. Chairman (300 Faculty Office Complex-East). Faculty: Erol Barbut, Larry E. Bobisud, Leo F. Boron, James E. Calvert, Howard E. Campbell, Charles O. Christenson, John I. Cobb, Paul F. Dierker, Roy H. Goetschel, Ralph J. Neuhaus, Clarence J. Potratz, William D. Royalty, William L. Voxman, Delbert J. Walker, Ya-Yen Wang, Gail A. Williams.

ADVANCED PLACEMENT: Courses in this subject field that are vertical in content are: 180-190-200-471-472, and 180-190-200-431-432.

CREDIT LIMITATIONS: Max 12 cr in Math 111, 112, 140, 179, 180, and CLEP combined. Math 140 carries no cr after 112; Math 180 carries 2 cr after 112; Math 112 carries no cr after 180.

Math **R070 Review of Mathematics** (0 cr). Prereq: perm.

Math **R080 Remedial Mathematics** (0 cr). Fundamentals of algebra. Prereq: 1 yr high school algebra and perm.

Math **R090 Basic Engineering Mathematics** (0 cr). Review of parts of college algebra, calculus, and differential equations important in engineering curricula. Prereq: perm.

Math **R105 Introduction to Digital Computers** (3 cr). Intro to computer techniques using Fortran compiler language; conditional and unconditional control statements, input-output statements, and binary and octal number systems. Prereq: perm.

Math **111-112 Fundamentals of Mathematics** (4 cr). Terminal sequence. Nature of mathematics; fundamental concepts of algebra, set theory, geometries, probability, and calculus. Prereq; 1 yr high school algebra and 1 yr plane geometry.

Math **135-136 Number System and Its Strucuture** (3 cr). For elementary-school teachers. Language and nature of deductive reasoning, elements of set theory, whole numbers, numeration systems, integers, rational numbers, elementary number theory, decimals, and real numbers. Also offered by correspondence study.

Math **140 College Algebra** (3 cr). Properties of real numbers; algebraic, exponential, logarithmic, and trigonometric functions, complex numbers, sequences, and series. Also offered by correspondence study. Prereq: 1½ yrs high school algebra and 1 yr plane geometry, or equiv, or 111.

Math **141 Analytic Trigonometry** (2 cr). Not offered in the regular on-campus academic program of the fall and spring semesters. Circular and trigonometric functions, inverse functions, applications including De Moivre's theorem. Also offered by correspondence study. Prereq: 2 yrs high school algebra and 1 yr plane geometry or 140.

Math **179 Circular Functions for Calculus** (1 cr). Definitions of circular functions and intro to their properties that are used in calculus. Recommended for students in 180 who have had no prior intro to trigonometry. Coreq: 180 and perm of dept.

Math **180 Analytic Geometry and Calculus I** (4 cr). Functions, limits, continuity, differentiations, integration, applications, differentiation and integration of transcendental functions. Also offered by correspondence study. Prereq: 2 yrs high school algebra and 1 yr plane geometry and ½ yr of analytic trigonometry, or equiv, or 140.

Math **R181 Analytic Geometry and Calculus I** (3 cr). Function, rate of change, limits, continuity, differentiation of algebraic functions with applications, and integration. Prereq: perm.

Math **184 Elements of Linear Algebra** (2 cr). Vector spaces, linear transformations, matrices, linear equations and determinants, and characteristics values. Prereq: 140.

Math **186 Theory of Numbers** (3 cr). Elementary number theory, including divisibility properties, congruences, and Diophantine equations. Prereq: 180.

Math **190 Analytic Geometry and Calculus II** (4 cr). Differentiation and integration of transcendental functions, integration techniques, general mean value theorem, numerical techniques, and series. Prereq: 180.

Math **R191 Analytic Geometry and Calculus II** (3 cr). Applications of the definite integral, differentiation and integration of transcendental functions, methods of integration, and determinants and linear equations. Prereq: perm.

Math **200 Analytic Geometry and Calculus III** (3 cr). Vectors, functions of several variables, and multiple integration. Prereq: 190.

Math **R201 Analytic Geometry and Calculus III** (3 cr). Two- and three-dimensional analytic geometry, vectors, hyperbolic functions, parametric equations, and polar coordinates. Prereq: perm.

Math **202** (s) **Seminar** (cr arr). Prereq: perm.

Math **204** (s) **Special Topics** (cr arr).

Math **205 Introduction to Computer Programming** (3 cr). Same as InfSc 205. Properties of algorithms, intro to PI/1 programming, data and file organizations, operating system.

Math **R211 Analytic Geometry and Calculus IV** (3 cr). Partial derivatives, infinite series, and complex numbers and functions. Prereq: perm.

Math **299** (s) **Directed Study** (cr arr). Prereq: perm.

Math **300 Mathematics for Teachers** (3 cr). Sets, number systems, elementary number theory, geometric constructions, projective geometry, and Euclidean geometry. Prereq: 180.

Math **303 Mathematics as an Art** (3 cr). Primarily for students in nonmathematical fields. Intro to the creative process of mathematics. Graded on the basis of P or F.

Math **305 Computer Organization and Programming** (3 cr). Same as InfSc 305. Organization of digital computers, machine assembly language programming, macro instructions, I/O linkages of assembly subroutines to other languages. Prereq: 205 or Engr 131.

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 coefficients, series solutions, systems of linear equations, Laplace transforms, and existence theorems. Prereq: 200.

Math **320 Probability and Statistics** (3 cr). Same as InfSc 320. Intro to sample spaces, random variables, distribution functions, estimation, and testing hypotheses with applications. Prereq: 180 or 112.

Math **331 Algebra for Elementary School Teachers** (3 cr). Properties of real numbers, linear equations and inequalities, modular arithmetic, complex numbers, polynomials, algebraic structures, and functions. Prereq: 136.

Math **332 Geometry for Elementary School Teachers** (3 cr). Experimental and informal geometry, points, lines, planes, space, congruence and measurement, geometric construction, space figures, similarity and trigonometry, spherical geometry, and plane coordinated geometry. Prereq: 136.

Math **390 Postulational Geometry** (3 cr). Postulates of Hilbert and Euclid; non-Euclidean geometries; the Erlanger program; projective geometry. Prereq: 200.

Math **400** (s) **Seminar** (cr arr). Prereq: perm.

Math **404** (s) **Special Topics** (cr arr).

Math **411 Elementary Topology** (3 cr). Alt/yrs 76-77. Primarily topology of metric spaces; compactness, connectedness, continuity, completeness, finite products, general topological spaces, function spaces, and Urysohn's lemma. Prereq: 184, 200, or perm.

Math **431-432 Advanced Applied Calculus** (3 cr). Alt/yrs 76-77. Vector analysis, complex variables, infinite series; Fourier analysis, special functions, partial differential equations. Prereq: 200.

Math **433-434 Numerical Analysis** (3 cr). Same as InfSc 433-434. Alt/yrs 77-78. Analysis of numerical methods useful in solving applied problems: solution of linear and nonlinear equations, interpolation, numerical differentiation and integration, numerical solution of differential equations. Prereq: 200; prereq or coreq: 205 or Engr 131.

Math **440 Linear Algebra** (3 cr). Algebra and geometry of vector spaces, linear transformations and matrices, quadratic forms, symmetric matrices, and characteristic vectors and roots. Prereq: 184.

Math **451-452 Probability Theory and Mathematical Statistics** (3 cr). Same as InfSc 451-452. Random variables, distribution functions, characteristic functions, limit theorems, distribution of sample statistics, order statistics, estimation, and testing hypotheses. Prereq: 184, 200.

Math **461-462 Higher Algebra** (3 cr). Abstract algebra. Prereq: 184.

Math **471-472 Advanced Calculus** (3 cr). Analysis; elementary topology of Euclidean n-space, limit concept and continuity, differentiation, Riemann and Lebesgue integration theory. Prereq: 184, 200.

Math **482 Advanced Applied Mathematics** (3 cr). Such topics as partial differential equations and boundary value problems, Green's functions, perturbation techniques, and calculus of variations. Prereq: 310.

Math **485 Structure of Programming Languages** (3 cr). Same as InfSc 485. Alt/yrs 76-77. Formal description of computer languages; compiler structure. Prereq: 305.

Math **487 Data Structures** (3 cr). Same as InfSc 487. Alt/yrs 77-78. Lists, strings, and arrays; representation of trees and graphs; storage systems and allocation; data structures in programming languages; data management systems. Prereq: 205.

Math **490 Introduction to Set Theory** (3 cr). Alt/yrs 77-78. Set operations, functions, binary operations and relations, cardinal and ordinal numbers, axion of choice, partially ordered sets, and Zorn's lemma. Prereq: 200.

Math **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or 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).

Math **511-512 Topology** (3 cr). Alt/yrs 77-78. Basic concepts of point set and algebraic topology.

Math **516 Topics in Topology** (3 cr). Algebraic methods and topics in topology.

Math **521 Seminar in Topology** (1-2 cr, max arr). Current literature.

Math **523-524 Algebraic Topology** (3 cr). Alt/yrs 76-77. Basic homotopy theory, covering spaces, constructive and axiomatic homology and cohomology theory, and applications.

Math **525-526 Advanced Topics in Topology** (3 cr, max 12).

Math **530 Differential Geometry** (3 cr). Space curves, surfaces and geometry on surfaces, Gaussian and mean curvature, non-Euclidean geometries, Riemanian geometry.

Math **531-532 Complex Variables** (3 cr). Alt/yrs 76-77. Theory of functions of a complex variable.

Math **535-536 Real Variables I-II** (3 cr). Alt/yrs 77-78. Theory of functions of real variables.

Math **539 Theory of Ordinary Differential Equations** (3 cr). Alt/yrs 77-78. Systems of ordinary equations of first order, linear equations, equations of n'th order with analytic coefficients and regular singular points, and self-adjoint boundary value problems.

Math **541 Seminar in Analysis** (1-2 cr, max arr). Current literature.

Math **545-546 Advanced Topics in Analysis** (3 cr, max 12).

Math **551-552 Abstract Algebra I-II** (3 cr). Alt/yrs 77-78. Structure of rings; Galois theory. Prereq: 462.

Math **553-554 Abstract Algebra III-IV** (3 cr). Alt/yrs 76-77. Group theory; nonassociative algebras. Prereq: 462.

Math **561 Seminar in Algebra** (1-2 cr, max arr). Current literature.

Math **565-566 Advanced Topics in Algebra** (3 cr, max 12).

Math **R570 Advanced Numerical Analysis** (3 cr). Interpolation; numerical methods of differentiation, integration, and solution of algebraic and differential equations. Prereq: numerical analysis.

Math **571-572 Functional Analysis** (3 cr). Alt/yrs 76-77. Linear topological spaces, Banach spaces, Hilbert spaces, and linear operators on spaces. Prereq: 536.

Math **574 Topics in Applied Mathematics** (3 cr). Integral and differential equations.

Math **R577-R578 Advanced Mathematical Statistics** (3 cr). Development and application of mathematical statistics to problems in the engineering sciences; applications. Prereq: perm.

Math **R580 Numerical Solutions of Partial Differential Equations** (3 cr). Finite difference methods for elliptic, parabolic, and hyperbolic equations; solution methods suitable for digital computers; iterative methods for large scale linear systems. Prereq: perm.

Math **585-586 Recent Developments in Mathematics** (3 cr). For students with extensive background in specific phases.

Math **599** (s) **Research** (cr arr). Prereq: perm.

Math **600 Doctoral Research and Dissertation** (cr arr).

Mechanical Engineering

William P. Barnes, Dept. Chairman (202 Gauss Lab. Bldg.). Faculty: Jasper R. Avery, William P. Barnes, Richard T. Jacobsen, J. Ted Norgord, T. Alan Place, Henry W. Silha, Richard B. Steward, Richard E. Warner.

ME **200 Sophomore Seminar** (0 cr). Discussion sessions to allow an exchange of ideas between students and faculty members in the Department of Mechanical Engineering; stress on topics of current concern to the profession. Graded on the basis of P or F.

ME **223 Introduction to Mechanical Design** (2 cr). Fundamentals of engineering design, graphical representation, and specification of mechanical systems. One lec and one 2-hr lab per wk. Prereq: Engr 101.

ME **253 Materials Processing** (3 cr). Theory and practice of machining, casting, forming, and shaping materials. Two lec and one 2-hr dem per wk; two 1-day field trips.

ME **261 Engineering Materials** (4 cr). Materials and properties; fundamental factors influencing properties and selection in design and fabrication. Three lec and one 3-hr lab per wk. Prereq: Chem 111.

ME **299** (s) **Directed Study** (cr arr). Individual study of selected topics. Detailed report on study project is required. Prereq: perm.

ME **300 Junior Seminar** (0 cr). See 200.

ME **304 Materials Selection for Mechanical Design** (2 cr). Service conditions encountered by engineering components; selection of materials as related to service. Prereq: 261.

ME **320 Fluid Mechanics Laboratory** (1 cr). One 3-hr lab per wk. Prereq: ES 211, Math 200; coreq: ES 320.

ME **322 Applied Thermodynamics** (3 cr). First and second law topics: property relations, irreversibility, mixtures, compressible flow, combustion, and systems analysis; classical and statistical concepts. Prereq: ES 321.

ME **324 Mechanical Design I** (3 cr). Kinematic principles and their applications (with statics and dynamics) to analysis and synthesis of machines. Two lec and one 3-hr lab per wk; one 1-day field trip. Prereq: ES 211, 221.

ME **326 Mechanical Engineering Project** (1-3 cr). Individual investigation and report; may include design, experiment, or analytical studies. Prereq: jr standing and perm of dept.

ME **354 Advanced Materials Processing** (2 cr). Materials processing, fabrication and finishing. One lec and one 3-hr lab per wk. Prereq: 253.

ME **361 Applied Engineering Materials** (3 cr). Strengthening, softening, and surface treatment of materials; solidification and joining of metals; properties of nonmetallics; composite materials; photomicrography; failure investigation; component failures in mechanical engineering systems. Two lec and one 2-hr lab per wk. Prereq: 261.

ME **374 Fuels and Lubricants** (2 cr). Correlation between properties of fuels and lubricants and their performance in an engine or machine, and in the significance of the standard tests conducted on these materials. One lec and one 2-hr lab per wk. Prereq: perm.

ME **390 Mechanical Engineering Analysis** (3 cr). Application of mathematical analysis to problems of mechanical engineering; analysis of discrete and continuous systems. Prereq: Math 310.

ME **404** (s) **Special Topics** (cr arr).

ME **410 Production Engineering** (3 cr). Planning, analysis, and control of engineering design processes; decision models, planning models, CPS, PERT, queueing theory, data collection and analysis, linear programming, Monte Carlo simulation, materials management and inventory, quality control, and computer techniques.

ME **411 Techniques of Value Analysis and Engineering** (3 cr). Alt/yrs. Concepts and approaches of value analysis and engineering identification; evaluation of basic and secondary functions of products; development of job plans; advanced management techniques; effective organization of value work utilizing case studies.

ME **412 Gas Dynamics** (4 cr). Continuation of study of compressible flow introduced in ES 320; control volume, compressibility, one-dimensional flow, normal and oblique shock-wave phenomena, two-dimensional flows, methods of characteristics, unsteady, duct flow, the shock tubes. Three lec and one 2-hr lab per wk. Prereq: ES 320, Math 310.

ME **420 Fluid Dynamics** (4 cr). Continuation of study of viscous flows introduced in ES 320; fluid states, the control volume, multidimensional ideal flow, Navier-Stokes equation, boundary layer equation, phenomenological theories of turbulance. Three lec and one 2-hr lab per wk. Prereq: ES 320, Math 310.

ME **425 Mechanical Design II** (4 cr). Stress and strain analysis, failure theories, and combined stresses; design properties of materials; design for variable and impact loading; design of machine elements and components; lubrication theory and bearing design. Prereq: 324, ES 340.

ME **426 Mechanical System Design** (4 cr). Individual or team development and design of a system, including its economic aspects; final report to include each student's computations and drawings. Two lec, two 2-hr labs, and six hrs of independent work per wk. Prereq: 425.

ME **427 Optimum Design** (3 cr). Techniques for optimum design with application to simple mechanical elements in problems with practical constraints. Prereq: 425.

ME **433 Internal Combustion Engines** (3 cr). Theory and characteristics of internal combustion engines (gasoline, diesel, gas turbines); includes engine testing, combustion, fuels, lubrication, exhaust emissions and control, carburetion and fuel injection. Prereq: 322.

ME **435 Energy Conversion Systems** (3 cr). See ChE 435.

ME **441 Thermal Systems Design** (3 cr). Design of integrated thermal system such as a steam power plant, including economics, influence on design of variable output, and environmental considerations. Prereq: 322.

ME **444 Environmental Engineering** (3 cr). Phenomena and problems associated with man's environment: air conditioning, refrigeration, solar heating, thermoelectric cooling, air pollution, and means for controlling environment. Prereq: 322.

ME **445 Heat Transfer** (4 cr). Transmission by conduction of heat in steady and unsteady states, free and forced convection, radiation; combined effects of conduction, convection, radiation, and fluid friction. Three lec and one 2-hr lab per wk. Prereq: ES 320, 321.

ME **450 Cryogenic Engineering** (3 cr). Engineering for low temperature systems: liquefaction of gases, cryogenic refrigeration systems, gas-separation and purification, cryogenic fluid storage and transfer systems; measurement systems, properties of materials at low temperatures, insulation for cyrogenic temperatures. Coreq: 445; prereq: ES 321.

ME **451 Aerospace Propulsion** (3 cr). Thermodynamic, fluid flow, heat transfer, and aerodynamic problems in jet propulsion systems. Prereq: ES 321.

ME **461 Fracture in Relation to Design** (3 cr). Design in relation to fracture, mechanics of fracture, plane strain fracture toughness, and time-dependent fracture. Prereq: perm.

ME **472 Mechanical Vibrations** (4 cr). Free, forced, and transient vibrations with and without damping; multimass and distributed systems; single degree and two degrees of freedom; special techniques; vibration control. Three lec and one 2-hr lab per wk. Prereq: ES 221, ES 340, Math 310.

ME **473 Applied Stress Analysis** (3 cr). For students interested in design. Analytical and experimental techniques for determining stresses and strains under static and dynamic loads, including photoelastic methods. Two lec and one 2-hr lab per wk. Prereq: ES 340.

ME **474 Lubrication, Friction, and Wear** (3 cr). Fundamentals of lubrication theory, compressible and incompressible lubricants, modern design of hydrostatic and hydrodynamic bearings; general nature of the process of friction and wear. Prereq: ES 320-321.

ME **491 Design Seminar** (1 cr). Graded on the basis of P or F. Prereq: sr standing.

ME **492 Seminar** (0 cr). One 3-6 day field trip. Graded on the basis of P or F. Prereq: sr standing.

ME **499** (s) **Directed Study** (cr arr). Individual study of selected topics. Detailed report on study project is required. Prereq: sr standing and perm.

ME **500 Master's Research and Thesis** (cr arr).

ME **501** (s) **Seminar** (cr arr). Engineering and engineering-related topics. Graded on the basis of P or F. Prereq: perm.

ME **502** (s) **Directed Study** (cr arr). Primarily for advanced graduate students. 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).

ME **505 Dynamics** (3 cr). Kinematical analysis, dynamic specification of a solid body, basic principles of dynamics; dynamics of rectangular, angular, and plane motion; dynamics in three dimensions; beams. Prereq: ES 221, Math 310, or perm.

ME **507 Machine Design** (3 cr). Topics in advanced mechanical design to meet needs and interests of students; special projects. Prereq: 425 or perm.

ME **508 Advanced Stress Analysis** (3 cr). Evaluation of stress and strain by analytic methods with discussion of experimental methods; use of the digital computer in the evaluation of complex stress fields; application of stress analysis methods to design of mechanical components. Prereq: 473, ES 340.

ME **512 Advanced Gas Dynamics** (3 cr). Compressible potential flow, linearized theory, transonic, supersonic, and hypersonic flow theory; compressible turbulent boundary layer and shock wave boundary layer interactions. Prereq: 322, ES 320.

ME **515 Transport Phenomena** (3-4 cr). See ChE 515.

ME **520 Advanced Fluid Dynamics** (3 cr). Applications of vector and tensor calculus as applied to problems in fluid dynamics; Navier-Stokes equation, boundary layer theory including classical and similarity solutions, and solutions with pressure gradients; turbulent flows and turbulent boundary layers.

ME **522 Statistical Thermodynamics** (3 cr). Principles of probability theory and quantum mechanics; formulation of basic postulate of statistical mechanics, thermodynamic probability, and most probable macrostate; molecular interpretation of first and second laws; intro to kinetic theory of a perfect gas. Prereq: ES 321.

ME **524 Thermodynamics** (3 cr). Development of the thermodynamic laws for the design and optimization of thermodynamic systems; intro of statistical methods; equations of state, and properties of ideal and real fluids; applications to recent developments in the experimental and theoretical aspects of thermodynamics. Prereq: 322 or perm.

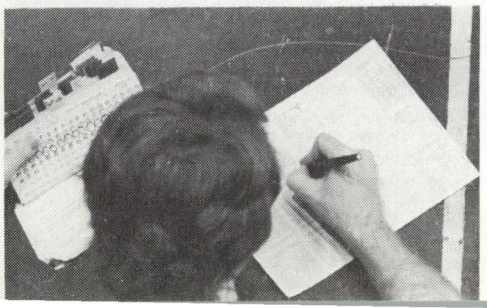
ME **541 Mechanical Engineering Analysis I** (2-3 cr). See ChE 541.

ME **ID&WS545 Conduction Heat Transfer** (3 cr). Analytical and numerical methods applied to steady-state and transient conduction of heat; rectangular, cylindrical, and spherical coordinate systems. Prereq: 445 or perm.

ME **ID&WS546 Convection Heat Transfer** (3 cr). Derivation of the energy conservation equation; laminar and turbulent forced convective heat transfer with internal and external flow; free convection. Prereq: 445 or perm.

ME **ID&WS547 Radiation Heat Transfer** (2-3 cr). Basic characteristics of thermal radiation; radiation interchange among surfaces; radiation in absorbing-emitting gases; combined modes of heat transfer. Prereq: 445 or perm.

ME **548 Elasticity** (3 cr). See CE 548.



ME **550 Vibration Engineering** (3 cr). Analysis of vibrating systems; including several degrees of freedom, branched systems, closed systems, and applications of energy method; vibration measurement and control. Prereq: 472 or perm.

ME **599** (s) **Research** (cr arr). Prereq: perm.

ME **600 Doctoral Research and Dissertation** (cr arr).

Engineering Technology/Mechanical Engineering

ET/ME **R222 Mechanical Engineering Drawing** (2 cr). Same as IEd R222. Dimensioning, tolerances, shop drawings, fastenings, weld specifications, working drawings, jigs and fixtures, and piping. Prereq: Engr 101 or equiv.

ET/ME **R332 Selection and Design of Machine Elements** (3 cr). Same as IEd R332. Principles and characteristics of various machine elements used in mechanical designs such as bearings, gears, bolted joints, and linkages.

ET/ME **R334 Energy Analysis of Machines** (3 cr). Same as IEd R334. Principles of thermodynamics and heat transfer including properties of substances, steady flow processes, cycles and their application to equipment, and elements of heat transfer (conduction, convection, and radiation) with application to simple geometries and design of heat exchangers.

ET/ME **R335 Materials Application** (3 cr). Same as IEd R335. Criteria for materials application in designs, properties of various types of materials; selection of materials as related to service conditions.

ET/ME **R336 Fluid Systems Design** (3 cr). Same as IEd R336. Basic principles of fluid flow including pressure losses (piping and components), seals, series and parallel flow circuits, flow measurements and control, and the selection and application of equipment.

ET/ME **R337 Tool Design** (3 cr). Same as IEd R337. Design of jigs, fixtures, and gauges; tools are designed by the students to solve specific manufacturing problems.

Medical Science

Guy R. Anderson, Director, WAMI Medical Program (302 Student Health Services Bldg.). Faculty: Guy R. Anderson, Steven L. Davis, Victor P. Eroschenko, Dale O. Everson, George L. Gaunt, William N. Henderson, Ronnal L. Lee, Thomas A. McKean, Philip J. Mohan, Victor E. Montgomery, David P. Olson, R. Garth Sasser, Stewart C. Schell, Erik H. Stauber, George W. Teresa, James D. Willett.

The following medical doctors serve as affiliate clinical professors of medical science: Donald E. Adams, Richard M. Alford, John M. Ayers, Thomas D. Balrd, Christine M. Bjornstad, Edward L. Boas, John B. Britzmann, Ronald D. Brooks, Gregory J. Burrato, Harry Chinchinian, Allen M. Cochrane, Robert C. Colburn, Lester C. Crismon, Omar H. Drury, Ronald E. Dunn, Ronald DuPont, Duane H. Espeland, Rodger G. Hawkins, Carl T. Koenen, Dean Mahoney, William C. Mannschreck, William P. Marineau, Cyril V. Novak, Robert L. Olson, David A. Spencer, Stephen M. Stewart, Dan E. Stipe, Richard D. Thorson, David C. Valder.

ALL COURSES IN THIS SUBJECT FIELD are open only to students who have WAMI medical student status or by permission of the director.

MedSc **501** (s) **Seminar** (cr arr).

MedSc **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.

MedSc **504** (s) **Special Topics** (cr arr).

MedSc **505 Preceptorship** (cr arr). To provide opportunity for first-year medical students to gain personal experience with and insight into the medical practice situations; the student will be stationed with physicians in their offices in accordance with the student's preference of discipline at the WAMI sites.

MedSc **ID&WS510 Histology** (3 cr). Description and microscopic examinations of cell types, tissues, and major organs of the human body; emphasis on organization and function.

MedSc **ID&WS511 Anatomy of the Trunk** (2 cr). Extensive regional study of human thorax, abdomen, pelvis, and perineum; gross anatomy correlated with clinical anatomy.

MedSc **ID&WS512 Mechanisms in Physiology and Pharmacology** (4 cr). Physiological mechanisms; membrane transport, epithelial transport, excitability, sensory receptors, junctional transmission, contractility, energy metabolism, hormonal mechanisms; mechanisms of homeostasis-control; integration of mechanisms, neural and hormonal-spinal reflex, autonomic nervous system, endocrines, gastrointestinal secretions and motility, temperature regulation.

MedSc **513 Introduction to Clinical Medicine** (1 cr). Communication skills and interview techniques to form the basis for the eventual doctor-patient relationship and for the skill of communicating with patients; patient profile obtained; concept of problem identification introduced.

MedSc **ID&WS514 Molecular and Cellular Biology I** (3 cr). Coordinated course covering classical molecular and cellular biochemistry, cellular physiology, and molecular genetics; stress on metabolic interrelationships as they occur in the individual and related to disturbances in disease states.

MedSc **ID&WS515 The Ages of Man** (2 cr). Physical and psychological development of the whole individual from birth through old age, including neonatal adaptation, nutrition, developmental milestones in childhood and adolesence, degenerative problems of senescence.

MedSc **ID&WS520 Cell and Tissue Response to Injury** (4 cr). Patterns of cell and tissue response to injury; immunity and immune responses; hypersensitivity, homograft reaction, and autoimmune response; immunohematology; morphological, functional, and kinetic aspects of leucocytes and immunocytes; principles of neoplasia.

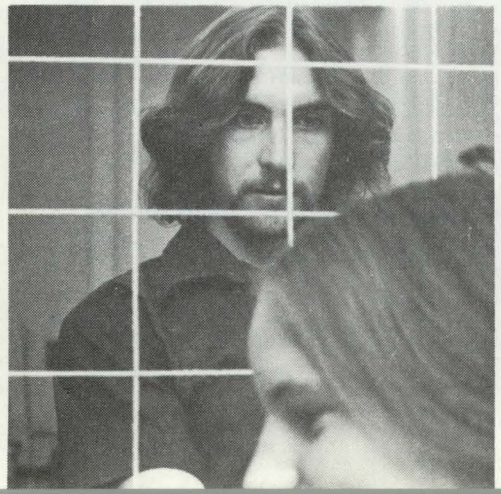
MedSc **ID&WS521 Natural History of Infectious Diseases and Chemotherapy** (5 cr). Pathogenesis and immunity of infectious diseases, natural barriers; microbiology, epidemiology, clinical manifestations and control of representative bacterial, fungal, parasitic, and viral infectious diseases; chemotherapeutics and principles of chemotherapy; sterilization, principles of asepsis, nosocomial and iatrongenic infections and their prevention.

MedSc **522 Introduction to Clinical Medicine** (2 cr). Continuation of communication skills especially as related to and dealing with affective material; intro to the medical history and instruction in data collection; some experience with patients in conducting a medical interview for the purpose of obtaining the medical history and patient profile.

MedSc **523 Systems of Human Behavior I** (2 cr). Overview of conceptual systems and models of behavior, normality and abnormality, environment and social learning, conditioning, learning in the autonomic nervous system, catecholamines and behavior, illness behavior, feelings, emotion and cognition, physician-patient interaction, and diseases and technics of behavior change.

MedSc **ID&WS524 Molecular and Cellular Biology II** (2 cr). Continuation of MedSc 514.

MedSc **ID&WS530 Epidemiology** (2 cr). Intro to statistical inference and basic concepts of variance and statistical significance as applied to problems in human biology and medicine; statistical and epidemiological health information systems and measurements of morbidity and mortality; computer usefulness, potentialities, and limitations; epidemiological approaches to infectious and noninfectious diseases; interaction of agent, host, and environment in causation and transmission.



MedSc **ID&WS531 Head, Neck, Ear, Nose, and Throat** (2 cr). Gross anatomy, including skull, pharynx, and larynx; audition and balance; physiology and clinical evaluation; maxillofacial disorders, diseases of nasal passages, naso- and oropharynx, accessory sinuses; physical examination.

MedSc **ID&WS532 Nervous System** (5 cr). Integrated approach to: normal structure and function of the nervous system, including the eye; basic neuropathology and diseases of the eye; neuropharmacology with emphasis on modes of action and classes of drugs; clinical evaluation of the nervous system and eye with illustrative examples of the manifestations of specific and important neurological lesions, and common and rare, but important and reversible, conditions.

MedSc **533 Medicine, Health, and Sociology** (1 cr). Social and cultural determinants of health and diseases; interrelationships of patient, physician, family, and community; health as the physical, mental, and social well-being of the individual.

MedSc **ID&WS534 Endocrine System** (2 cr). Gross and microscopic anatomy of the endocrine system; principles of endocrine physiology as illustrated by model systems (extending the concepts of homeostasis, control, and feedback systems previously learned), hormonal biosynthesis, and important pathophysiologic states; endocrine integration of metabolism.

MedSc **535 Introduction to Clinical Medicine** (2 cr). Screening physical examination; further experience and instruction in the medical history; problem-oriented write-up.

Metallurgy

John R. Hoskins, Head, Dept. of Mining Engineering and Metallurgy (217 Mines Bldg.). Faculty: Gene E. Bobeck, Donald F. Clifton, Norman J. Sather.

Met **102 Materials and Their Manufacture** (1 cr). Intro to materials for students who wish to know how and from what the material things of our civilization are made. One 3-hr lab per wk; one 1-day field trip.

Met **200** (s) **Seminar** (cr arr). Prereq: perm.

Met **201 Elements of Materials Science** (3 cr). Principles relating properties of metals, ceramics, polymers, and composites to their structures. Prereq: Chem 103 or 111 or 114.

Met **202 Apparatus and Practices** (2 cr). Measure and control techniques and instruments, metallography, pyrometry, quality control. One 2-hr lec-dem and one 3-hr lab per wk. Coreq: 201.

Met **204** (s) **Special Topics** (cr arr).

Met **299** (s) **Directed Study** (cr arr). Prereq: perm.

Met **305 Structure of Solids** (3 cr). Crystallography, crystal properties and chemical bonding, defects, amorphous solids, polymorphism and crystal growth. Prereq: Chem 103 or 111 or 114, Phys 221.

Met **308 Introduction to Metallurgical Thermodynamics** (3 cr). Review of thermodynamic laws, thermodynamics of solutions, applications to kinetic processes. Prereq: Chem 305, ES 321.

Met **400** (s) **Seminar** (cr arr). Review of current litertature. One 3-day field tirip. Prereq: perm.

Met **404** (s) **Special Topics** (cr arr).

Met **412 Mechanical Metallurgy** (2 cr). Mechanical properties of solids, testing, brittle and ductile fracture, plasticity, mechanical processes in metallurgy. Prereq: 201.

Met **413 Physical Metallurgy I** (4 cr). Theory, structure, and properties of metals and alloys; their relation to industrial problems. Two lec and one 3-hr lab per wk. Prereq: 201, 308.

Met **414 Metallurgical Design** (2 cr). Factors involved in design problems; directed work on selected problems. One lec and one 3-hr lab per wk. Prereq: sr standing.

Met **416 Physical Metallurgy II** (2 cr). Continuation of 413 with emphasis on precipitation, diffusion, phase diagrams, and transformations in steel. Prereq: 413 or perm.

Met **417 X-ray Diffraction** (3 cr). Diffraction of X-rays by crystals; application to study of polycrystalline materials. Two lec and one 3-hr lab per wk. Prereq: Phys 114 or 221.

Met **WS418 Polymeric Materials** (3 cr). Alt/yrs 77-78. WSU MSE 402. Structural characterization, syntheses, and reactions of polymeric materials; relationships between structure and properties; viscoelasticity, deformation, and physical behavior of polymers. Prereq: 201 or jr standing in engineering, chemistry, or physics.

Met **WS420 Fracture in Solids** (3 cr). WSU MSE 433. Fracture initiation and propagation in metals, ceramics, polymers, wood, and composites; effect of environment; relationship to microstructure. Prereq: sr standing in engineering, chemistry, or physics.

Met **421 Ceramic Materials** (3 cr). Properties and uses; cermets and related materials. Prereq: Phys 113-114 or Phys 220-221, and Chem 103 or Chem 111 or Chem 114.

Met **422 Ceramics Laboratory** (2 cr). Ceramic fabrication; PCE and DTA determinations. Two 3-hr labs per wk. Prereq: 421.

Met **441 Ore Dressing** (4 cr). Methods of comminution and concentration of ores. Three lec and one 3-hr lab per wk; two 1-day field trips. Prereq: Chem 103 or Chem 111, and Phys 220— 221.

Met **ID442 Extractive Metallurgy** (4 cr). Extraction and refining of ferrous and nonferrous metals. Three lec and one 3-hr lab per wk. Prereq: Chem 103 or Chem 111, and Phys 220-221.

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 **ID503 Advanced Extractive Metallurgy** (3 cr). Topics in the extraction and refining of metals. Prereq: 442 or perm.

Met **504** (s) **Special Topics** (cr arr).

Met **ID506 Advanced Ore Dressing** (3 cr). Theories of comminution; flotation and related surface phenomena; electrical and magnetic concentration; process control. Prereq: 441 or perm.

Met **ID507 Advanced Ceramics** (3 cr). Alt/yrs 76-77. Theoretical aspects; constitution of green bodies; shrinkage; porosity; sintering; effect of structure on mechanical, electrical, and magnetic properties; glasses. Prereq: perm.

Met **510 Research Methods** (3 cr). Alt/yrs 76-77. Experimental methods and apparatus; planning and evaluation. Two lec and one lab per wk. Prereq: perm.

Met **511 Advanced Physical Metallurgy** (3 cr). Alt/yrs 76-77. Theory of metals and alloys; application to problems of structure; properties of engineering metals. Prereq: perm.

Met **512 Metallurgical Thermodynamics** (3 cr). Alt/yrs 77-78. Aspects of thermodynamics most used in metallurgy; application to problems. Prereq: perm.

Met **514 Phase Rule and Phase Relations** (3 cr). Alt/yrs 76-77. Phase rule construction and interpretation of phase diagrams; metastable and unstable phase relations. Prereq: perm.

Met **517 Kinetics of Metallurgical Reactions** (3 cr). Alt/yrs 77-78. Application of absolute rate theory; time and temperature dependence; kinetics of gas-solid reactions; corrosion, diffusion and recrystallization. Prereq: perm.

Met **518 Advanced Mechanical Metallurgy** (3 cr). Alt-yrs 77-78. Microscopic and macroscopic theories of deformation; materials-forming processes; mechanical tests. Prereq: perm.

Met **ID520 Nucleation in Solids** (3 cr). Alt/yrs 76-77. Theories of Volmer-Weber and Becker-Doring; application to solid-state nucleation; relation to solid-state transformations. Prereq: perm.

Met **ID522 Surface Reactions of Metals** (3 cr). Alt/yrs 77-78. Surface chemistry and physics; illustrative examples from metallurgy. Prereq: perm.

Met **R525 Physical Chemistry of Metals** (3 cr). Thermodynamics, heterogenous equilibria, electrochemistry, diffusion, and kinetics. Prereq: perm.

Met **R531 Behavior of Engineering Materials** (3 cr). Static and dynamic properties; relation of mechanical properties to physical properties and crystal imperfections. Prereq: perm.

Met **R533 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). Mechanisms by which failure can occur in structural materials.

Met **R536 Theoretical Structural Metallurgy** (3 cr). Structure of metals and alloys; free electron theory; zone theory; equilibrium; order-disorder; kinetics of phase changes and shear processes. Prereq: perm.

Met **R538 Corrosion in Metallurgy** (3 cr). Corrosion by aqueous media, gases, liquid metals, and fused salts. Prereq: physical chemistry, including electrochemistry, or perm.

Met **539 Electron Metallography** (3 cr). Alt/yrs 77-78. Operation and applications in metallurgy of the electron microscope, microprobe, and other instruments applying charged particle optics. Prereq: perm.

Met **WS542 High Temperature Phenomena in Solids** (3 cr). Alt/yrs 76-77. WSU MSE 542. Kinetics and mechanisms of diffusion in solids; high-temperature deformation; oxidation. Prereq: 416 or one semester of chemical thermodynamics.

Met **WS544 Advanced Topics in Materials Science** (3 cr, max 6). WSU MSE 501. Chemical crystallography, microstructure, ultrastructure, theories of crystalline and noncrystalline solids, rheology and fracture mechanics of material.

Met **597** (s) **Practicum** (cr arr). Prereq: perm.

Met **598** (s) **Internship** (cr arr). Prereq: perm.

Met **599** (s) **Research** (cr arr). Prereq: perm.

Military Science

John N. Vanderschaaf, Dept. Head (101 Mem. Gym.). Faculty: Blair K. Blacker, Carl E. Key, Jr., John R. McQuestion, Paul W. Rea, John N. Vanderschaaf.

MS **101-102 Fundamentals of Military Leadership and Management** (1 cr). Orientation to the Army Officer Education Program, organization, missions, and functions of the Army; military map reading; intro to military leadership and management.

MS **200** (s) **Seminar** (cr arr). Prereq: perm.

MS **201-202 Applied Leadership and Management** (1 cr). Leadership training, command experience, organization and employment of basic military units, and a study of unit management, leadership, and problems. Prereq: 101-102.

MS **205 Fundamentals and Applied Leadership and Management (Compressed)** (2 cr). Compression of 102, 201-202. Leadership training, command experience, organization and employment of basic military units, map reading, and unit leadership problems. Prereq: outstanding work in 101 and perm of dept.

MS **289 Basic Encampment** (4 cr). Intensive 6-wk summer encampment. Graded on the basis of P or F. Prereq: enrollment in the MSCEP 2-yr program and perm. of dept.

MS **299** (s) **Directed Study** (cr arr). Prereq: perm.

MS **301-302 Advanced Leadership and Management** (3 cr). Leadership and management; leader's role in offensive and defensive missions of units ranging from squad to battalion. Prereq: 201-202 and two semesters in art of communcations, i.e., speech or English composition, or perm of dept.

MS **400** (s) **Seminar** (cr arr). Prereq: perm.

MS **401-402 Seminar in Leadership and Management** (3 cr). Application of leadership and management skills; Army organization; team work in military operations. Prereq: 301-302.

MS **403 Army Aviation Flight Training** (0 cr). To prepare students for Army Aviation flight training and FAA examinations leading to

private pilot's license. Ground school, plus 41½ hrs of flight instruction. Coreq: 401-402.

MS **499** (s) **Directed Study** (cr arr). Prereq: perm.

Mining Engineering

John R. Hoskins, Head, Dept of Mining Engineering and Metallurgy (217 Mines Bldg.). Faculty: Samuel S. M. Chan, William R. Green, Christopher J. Hall, John R. Hoskins.

Min **103 Elements of Mining** (2 cr). Also open to nonmajors. Mining terminology and mining's role in national economy and way of life; includes mineral economics, management, prospecting, discovery, development, exploitation, processing, and marketing.

Min **200** (s) **Seminar** (cr arr). Prereq: perm.

Min **204** (s) **Special Topics** (cr arr).

Min **218 Mine Rescue and First Aid** (1 cr). Normally offered as one full wk of training by USBM or MESA. Students successfully completing this course will qualify for a certificate showing training in self-contained oxygen breathing apparatus, self-rescuer, and first aid.

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 **306 Industrial Safety** (2 cr). Underground and surface environmental problems of accident and health; statistics, prevention, economy, research on dusts, lighting, rock stability, air, and contaminants. One 2-day field trip.

Min **350 Mineral Economics** (3 cr). Examination of minerals as resources and commodities; importance of minerals, characteristics of their occurrence, their production systems, and nature of mineral resource reserves; factors affecting supply and demand for minerals, and pricing and marketing of mineral materials.

Min **352 Mine Management** (3 cr). Management of mineral producing systems; finance, cost analysis and reporting, economic decision making, resource scheduling, and management of human relations. One 2-day field trip. Prereq: 103.

Min **371 Mine Ventilation I: Psychrometrics** (3 cr). First and second laws of thermodynamics; steam tables and the perfect gas; gas-vapour mixtures; psychrometric chart; heat, humidity, comfort ratings, cooling; natural ventilation.

Min **372 Mine Ventilation II: Quantity and Quality Control** (2 cr). Quality and quantity control; gases, dust, airflow, instrumentation, circuits, control, fans and their characteristics. Prereq: 371.

Min **390 Mine Development** (2 cr). Ore deposits, field mapping, mine surveying, mine evaluation, exploration, and development.

Min **391 Mining Principles** (3 cr). Mine design, planning, problem solving, and electrical distribution. One 4-day field trip. Prereq: 103, ES 211; coreq: ES 340.

Min **400** (s) **Seminar** (cr arr). Prereq: perm.

Min **401 Rock Mechnanics** (3 cr). Basic mechanical properties of rocks and rock masses; laboratory and in-situ techniques 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 techniques of rock fragmentation relating to drilling, blasting, and crushing.

Min **404** (s) **Special Topics** (cr arr).

Min **410 Mine Plant Design** (2 cr). Alt/yrs 77-78. Design of mine structures such as headframes, buildings, ore bins, and mechanical devices. Two 3-hr labs per wk; one 1-day field trip. Prereq: ES 340.

Min **420 Mineral Resources Management and the Environment** (3 cr). Factors which must be considered in the management, development, or exploitation of nonrenewable natural resources. One 2-day field trip. Prereq: jr standing.

Min **R431 Industrial Fire Protection I** (3 cr). Application of engineering principles to industrial fire protection; analysis and use of building codes; management of industrial fire protection programs. Prereq: perm.

Min **R432 Industrial Fire Protection II** (3 cr). A review and analysis of significant fire loss experience in the U.S.; cause factors, lessons learned, and their relation to development of fire codes; modern trends in fire safety research technology.

Min **R433 Environmental Health I—Industrial** (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.

Min **R434 Environmental Health II—Occupational Stress** (3 cr). Intro to the 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.

Min **R435 Operational Safety** (3 cr). Basic concepts of industrial safety programs with respect to the more common mechanical problems of construction and operation within modern industry.

Min **450 Mine Planning I** (3 cr). Design of surface systems, open cuts, quarries, alluvial, and strip mining; slope stability, stripping, and earthmoving; applications of operation research techniques, transportation by rail, belt, cable, and wheel. One 3-day field trip. Prereq: perm.

Min **451 Mine Planning II** (3 cr). Design of underground openings and systems; industrial engineering practices; operations research techniques; equipment selection. One 3-day field trip. Prereq: perm.

Min **470 Mine Services** (3 cr). Movement of materials which includes principles of fluids and mechanics; ventilation fundamentals, pumping, hoisting, conveying, track, and rail haulage. One 4-day field trip. Prereq: 103, ES 211, ES 320.

Min **490 Geophysical Exploration** (3 cr). Principles and practical methods; magnetic, electrical, electromagnetic, seismic, gravitational, radioactive, and geothermal methods; geophysical well logging. One 3-day field trip. Prereq: physical geology and physics; calculus is recommended.

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). Alt/yrs 76-77. Application of techniques in experimental stress analysis for structural design in all phases of the engineering system; photoelastic modeling and coating; strain gage techniques; stress patterns in frameworks, rock masses, and foundations. One lec and two 3-hr labs per wk. Prereq: ES 340

Min **504 Rock Mechanics II** (3 cr). Alt/yrs 76-77. 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: 401 or perm.

Min **505 Design of Mine Structures** (4 cr). Alt/yrs 76-77. Application of experimental stress analysis and the principles of engineering similitude in the design of stable mine structures. One lec and three 3-hr labs per wk. Prereq: 401, and 503 or 504.

Min **506** (s) **Special Topics** (cr arr).

Min **510 Mine Plant Design II** (3 cr). Alt/yrs 77-78. Practical problems; system synthesis of design of headframes, buildings, bridges, ore bins, road, railroad, and other structures; engineering case methods. Three 3-hr labs per wk. Prereq: 103, 410, and ES 340, or perm.

Min **513 Mine Ventilation Planning** (3 cr). Alt/yrs 77-78. Physical and economic factors involved in providing adequate air flow to a typical mine circuit affected by gas emission, heat flux from rock walls, and dust sources; ventilation networks. Two lec and one 3-hr lab per wk. Prereq: perm.

Min **514 Mine Environmental Analysis** (3 cr). Alt/yrs 76-77. Contaminating effects of gases, dust, radiation, heat, and moisture in

a mine environment; work efficiency of miners subjected to various environmental conditions. Two lec and one 3-hr lab per wk; one 3-day field trip. Prereq: perm.

Min **520 Mining Geophysics II** (3 cr). Alt/yrs 76-77. Theory and application of magnetic, electrical, electromagnetic, and radioactive methods of geophysical prospecting for metallic and nonmetallic mineral deposits. Two lec and one 3-hr lab per wk; one 3-day field trip. Prereq: 490 or perm.

Min **530 Mining Exploration Techniques** (3 cr). Alt/yrs 76-77. Underground exploration for mining engineers; application of geological, geochemical, geophysical, and statistical methods in exploration; reduction, correlation, and overall interpretation of data; computer application. Two lec and one 3-hr lab per wk; one 3-day field trip. Prereq: 490 or perm.

Min **540 Mine Valuation** (3 cr). Alt/yrs 77-78. 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 Mine Industrial Engineering** (3 cr). Alt/yrs 76-77. Industrial engineering, operations research, and computer programming; application to mining engineering problems. Prereq: perm.

Min **570 Mine Systems Design** (3-6 cr). Alt/yrs 77-78. Integration and synthesis of equipment, methods, and design; use of latest operation research tools to provide a complete mine plan of operation. Prereq: perm.

Min **573 Haulage Systems Design** (3 cr). Alt/yrs 76-77. Design criteria in the specification of all pertinent aspects involved in transportation of lump ore on surface or underground. Two lec and one 3-hr lab per wk. Prereq: perm.

Min **597** (s) **Practicum** (cr arr). Prereq: perm.

Min **598** (s) **Internship** (cr arr). Prereq: perm.

Min **599** (s) **Research** (cr arr). Prereq: perm.

Mining Engineering-Metallurgy

John R. Hoskins, Head, Dept. of Mining Engineering and Metallurgy (217 Mines Bldg.). Faculty: Gene E. Bobeck, Samuel S. M. Chan, Donald F. Clifton, Donald F. Green, Christopher Hall, John R. Hoskins, Norman J. Sather.

MinMt **110 Minerals and Man** (3 cr). Primarily for nonmajors. Man's past, present, and future dependence on mineral resources; man's exploitation of the earth's nonrenewable resources. May be taken with 111.

MinMt **111 Mineral World Laboratory** (1 cr). Designed to correlate with and to supplement 110. Five 3-hr labs per semester; four 1-day field trips. Coreq: 110.

MinMt **200** (s) **Seminar** (0 cr). Appropriate speakers and unscheduled activities relating to the mineral field; required of all lower-div mining and metallurgy students. Graded on the basis of P or F.

MinMt **400** (s) **Seminar** (0 cr). Appropriate speakers and unscheduled activities relating to the mineral field; required of all upper-div mining and metallurgy students. Graded on the basis of P or F.

MinMt **600 Doctoral Research and Dissertation** (cr arr).

Museology

Roderick Sprague, Head, Dept. of Sociology/Anthropology (101 Faculty Office Complex-West). Faculty: G. Ellis Burcaw (Director, University Museum).

Museo **200; ID400; ID501** (s) **Seminar** (cr arr). Prereq: perm.

Museo **203; ID403** (s) **Workshop** (cr arr). Prereq: perm.

Museo **204; ID404** (s) **Special Topics** (cr arr).

Museo **299; ID499; ID502** (s) **Directed Study** (cr arr). Prereq: perm.

Museo **ID301 Introduction to Museology** (3 cr). Museum appreciation for the general student; history, theory, and practice of museums; not specialized as to subject field. One 1-day and two ½-day field trips. Also offered by correspondence study.

Museo **ID402 Intermediate Museology** (3 cr). Primarily for students considering museum work as a career. Techniques of caring for collections, preparing exhibits, and museum administration; not specialized as to subject field. Two lec and one 3-hr lab per wk. One 4-day field trip. Prereq: ID301 and/or perm.

Museo **WS410 Gallery Procedures** (3-6 cr, max 12). WSU FA 410. Gallery concepts and management; budget, installation designs, art handlings, graphics, individual projects, flexible hours; adaptable to all museology students regardless of major. Six-twelve hrs of lab per wk. Prereq: perm.

Museo **ID450 Advanced Museology** (cr arr). Museum work under supervision suited to the student's needs. Some travel may be necessary. Prereq: perm.

Music

Floyd H. Peterson, Director (205 School of Music Bldg.). Faculty: Dorothy T. Barnes, LeRoy O. Bauer, William A. Billingsley, Mary H. DuPree, Stephen R. Folks, Marian T. Frykman, Cecil W. Gold, Richard H. Hahn, Sandra L. Hahn, Ronald J. Klimko, Glen R. Lockery, Norman R. Logan, Bruce R. Matthews, Richard S. Neher, Floyd H. Peterson, Robert C. Probasco, Howard A. Robbins, Lynn J. Skinner, Robert J. Spevacek, Charles W. Walton, Richard F. Werner, William C. Wharton.

APPLIED PERFORMANCE STUDIES

MusA **100** (s) **Individual Instruction** (1 or 3 cr). Max 12 cr for the major performing area in MusA 100, 101, and 201 may be counted toward the B.Mus. degree. All freshmen normally take 100 their first semester. Areas normally offered are voice, piano, organ, harpsichord, harp, violin, viola, cello, string bass, clarinet, saxophone, oboe, flute, bassoon, French horn, trumpet, trombone, baritone, tuba, percussion, and guitar. Special fee course. Consult the School of Music for proficiency requirements for admission to the various levels (MusA 100, 101, 201, 301, 407, and 505). Enrollment may be limited to majors in the School of Music. Prereq: audition and perm of dept.

MusA **101** (s) **Individual Instruction** (1 or 3 cr). Max 12 cr for the major performing area in MusA 100, 101, and 201 may be counted toward the B.Mus. degree. See MusA 100 for description and areas. Prereq: audition by committee and perm of dept.

MusA **102 Accompanying** (2 cr). Principles of accompanying with the use of keyboard instruments. Prereq: perm.

MusA **103 Concert Choir** (1 cr, max arr). Three to five rehearsals per wk. Prereq: audition and perm.

MusA **104** (s) **Chorus** (1 cr, max arr). Section 1, swing choir; section 2, women's chorus; section 3, mixed chorus. All sections: 1-3 rehearsals per wk. Prereq: perm.

MusA **105** (s) **Orchestra** (1 cr, max arr). Three to five rehearsals per wk, with occasional evening rehearsals. Prereq: perm.

MusA **106** (s) **Band** (1 cr, max arr). Three to five rehearsals per wk. Prereq: perm.

MusA **108 Chamber Orchestra** (1 cr, max arr). One to five rehearsals per wk; may include evening rehearsals. Prereq: perm.

MusA **109 Festival Choir** (1 cr, max arr). Daily rehearsals: open to all students.

MusA **145-146 Piano Class** (1 cr). Prereq: perm of dept.

MusA **147-148 Voice Class** (1 cr). Prereq: perm of dept.

MusA **151-152 Guitar Class** (1 cr). Prereq: perm of dept.

MusA **200** (s) **Seminar** (cr arr). Prereq: perm.

MusA **201** (s) **Individual Instruction** (1 or 3 cr). Max 12 cr for the major performing area in MusA 100, 101, and 201 may be counted toward the B.Mus. degree. See MusA 100 for description and areas. Prereq: audition by committee and perm of dept.

MusA **203** (s) **Workshop** (cr arr). Prereq: perm.

MusA **204** (s) **Special Topics** (cr arr).

MusA **245-246 Piano Class** (1 cr). Prereq: perm of dept.

MusA **265** (s) **Chamber Ensemble** (1 cr, max arr). Chamber music performing groups; organized each semester. Prereq: perm.

MusA **266 Collegium Musicum** (1 cr, max arr). Prereq: perm.

MusA **280 Opera Workshop** (1 cr, max 4). Analysis, rehearsal, and performance of operatic literature. Prereq: perm.

MusA **299** (s) **Directed Study** (cr arr). Prereq: perm.

MusA **301** (s) **Individual Instruction** (1-3 cr, max arr). See MusA 100 for description and areas. Prereq: audition by committee and perm of dept.

MusA **302 Accompanying** (2 cr). See MusA 102. Prereq: perm.

MusA **303 Concert Choir** (1 cr, max arr). Three to five rehearsals per wk. Prereq: 4 cr in choral groups, audition, and perm.

MusA **304** (s) **Chorus** (1 cr, max arr). See MusA 104. Prereq: 4 cr in choral groups, audition, and perm.

MusA **305** (s) **Orchestra** (1 cr, max arr). See MusA 105. Prereq: 4 cr in instrumental groups, audition, and perm.

MusA **306** (s) **Band** (1 cr, max arr). See MusA 106. Prereq: 4 cr in instrumental groups, audition, and perm.

MusA **308 Chamber Orchestra** (1 cr, max arr). See MusA 108. Prereq: 4 cr in instrumental groups, audition, and perm.

MusA **309 Festival Choir** (1 cr, max arr). See MusA 109. Prereq: 4 cr in choral groups and perm.

MusA **365** (s) **Chamber Ensemble** (1 cr, max arr). See MusA 265. Prereq: audition and perm.

MusA **366 Collegium Musicum** (1 cr, max arr). Prereq: audition and perm.

MusA **387 Conducting I** (2 cr). Baton techniques, score reading, and problems of conductor of large choral and instrumental organizations. Prereq: MusC 122 or MusC 141.

MusA **400** (s) **Seminar** (cr arr). Prereq: perm.

MusA **403** (s) **Workshop** (cr arr). Prereq: perm.

MusA **404** (s) **Special Topics** (cr arr).

MusA **407** (s) **Individual Instruction** (1-3 cr, max arr). Not open to undergraduates. Limited to graduate students who are not concentrating in applied performance studies (who need to earn degree cr in an applied area), and to graduate students concentrating in applied performance studies (who need to earn degree cr in a secondary applied area). See MusA 100 for areas offered. Prereq: perm of dept.

MusA **480 Opera Workshop** (1-3 cr, max 8). See MusA 280. Prereq: 2 cr in MusA 280 or perm.

MusA **487 Conducting II** (2 cr). Prereq: MusA 387 or perm.

MusA **490 Senior Recital** (0 cr). Cr is granted under MusA 301. Graded on the basis of P or F. Prereq: perm of dept.

MusA **498 Proseminar** (2 cr). Prereq: perm.

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).

MusA **505** (s) **Individual Instruction** (1-6 cr, max arr). Primarily for majors concentrating in musical performance. See MusA 100 for description and areas. Prereq: audition by committee and perm of dept.

MusA **507** (s) **Individual Instruction** (1-3 cr, max arr). For graduate students who are studying a major instrument. Not applicable toward degree requirements for students enrolled in the performance emphasis of the M.Mus. degree. Prereq: audition by committee; proficiency equivalent to 301 level.

MusA **513-514 Seminar in Conducting** (1-4 cr, max 8). Prereq: perm.

MusA **565** (s) **Chamber Ensemble** (1 cr, max 3). See MusA 265. Prereq: audition and perm.

MusA **566 Collegium Musicum** (1 cr, max 3). Prereq: audition and perm.

MusA **590 Master's Recital** (0 cr). Registration for recital related to degree. Cr is granted under MusA 505. Graded on the basis of P or F. Prereq: perm of dept.

MusA **599** (s) **Research** (cr arr). 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 121 or 141. Max 8 cr in any combination of MusC 120, 121-122, 141, 142.

MusC **121-122 Elements of Music Theory** (4 cr). For minors and students majoring in fields other than music. Singing, playing, dictation, writing scales, intervals, chords, and progressions. Not open for cr to students who have taken MusC 141-142. Max 8 cr in any combination of MusC 120, 121-122, 141, 142. Five lec per wk. Prereq: MusC 121 for 122.

MusC **133 Theory Keyboard Laboratory** (1 cr). Fundamentals of keyboard technique as related to theoretical concepts and skills. Coreq: MusC 141.

MusC **139-140 Aural Skills I-II** (1 cr). Exercises and drill in sight-singing and ear training.

MusC **141 Musicianship and Music Literature** (3 cr). Primarily for and may be limited to majors. Fundamentals of music; analysis of selected works from each period of music history. Students who have taken MusH 100, MusC 120, 121, or similar courses, must deduct the previously earned cr on the class permit for MusC 141 when registering. Duplicate cr is not permitted. Prereq: perm of dept; coreq: MusA 145 and MusC 139.

MusC **142 Theory of Music I** (3 cr). Primarily for and may be limited to majors. Harmonic materials, part-writing skills, and analysis. Prereq: MusC 141; coreq: MusC 140.

MusC **149 Rudiments of Music** (3 cr, max 6). Flexible content to meet the needs of students. Prereq: perm.

MusC **200** (s) **Seminar** (cr arr). Prereq: perm.

MusC **203** (s) **Workshop** (cr arr). Prereq: perm.

MusC **204** (s) **Special Topics** (cr arr).

MusC **239-240 Aural Skills III-IV** (1 cr).

MusC **241 Theory of Music II** (3 cr). Primarily for and may be limited to majors. Prereq: MusC 142; coreq: MusC 239 and MusH 321.

MusC **242 Theory of Music III** (3 cr). Primarily for and may be limited to majors. Prereq: MusC 241; coreq: MusC 240 and MusH 322.

MusC **299** (s) **Directed Study** (cr arr). Prereq: perm.

MusC **323 Tonal Counterpoint** (2 cr). Stylistic approach to writing counterpoint; emphasis on the *Two-Part Inventions* and *French Suites* of J. S. Bach. Prereq: MusC 242 or perm.

MusC **324 Modal Counterpoint** (2 cr). Stylistic approach to writing two-part counterpoint; emphasis on the vocal polyphony of the 16th century. Prereq: MusC 242 or perm.

MusC **325-326 Composition** (2 cr, max arr; 2 cr). Study and practice of composing with 20th-century techniques and devices. Prereq: MusC 242 or perm.

MusC **327 Orchestration I** (2 cr). Elementary principles of transcription and orchestration; emphasis on instrument ranges, idiomatic characteristics, and score preparation. Prereq: MusC 242 or perm.

MusC **341 Twentieth-Century Music Theory and Literature** (4 cr). Techniques of composition studied through aural and visual analysis of significant works by 20th-century composers. Prereq: MusC 242 or perm.

MusC **345 Theory Review** (3 cr). Primarily for advanced-degree candidates. Summary of subject-matter covered in MusC 141, 142, 241, 242, 341.

MusC **400** (s) **Seminar** (cr arr). Prereq: perm.

MusC **403** (s) **Workshop** (cr arr). Prereq: perm.

MusC **404** (s) **Special Topics** (cr arr).

MusC **420 Advanced Tonal Counterpoint** (2 cr). Continuation of MusC 323. Emphasis on three- and four-part counterpoint, including the fugue, beginning with the style of the 18th century. Prereq: MusC 323 or perm.

MusC **421 Advanced Modal Counterpoint** (2 cr). Continuation of MusC 324. Emphasis on three- and four-part vocal polyphony of the 16th century. Prereq: MusC 324 or perm.

MusC **423-424 Advanced Composition** (2 cr). Continuation of MusC 325-326. Increasing emphasis on varied media and larger forms, but with value being placed on student's originality. Prereq: MusC 326 or perm.

MusC **427 Orchestration II** (2 cr, max arr). Instrumental scoring; emphasis on orchestral styles of various periods and on creativity in orchestral writing. Prereq: MusC 327 or perm.

MusC **428 Choral Arranging** (2 cr). Primarily for music education students and others generally interested in composition. Devices and techniques. Prereq: MusC 122 or 142, or perm.

MusC **429 Theoretical Basis of Jazz** (2 cr). Harmonic, melodic, rhythmic, and stylistic analysis of principal trends. Prereq: perm.

MusC **441 Twentieth-Century Techniques** (3 cr). Study of compositional techniques peculiar to the 20th century; projects will be both compositional and analytical in emphasis.

MusC **442 Musical Analysis** (3 cr). Study of traditional forms and analytical techniques.

MusC **461 Band Arranging** (2-4 cr, max 4). Scoring for wind instruments; range, transposition, and tone color. Prereq: MusC 242 or perm.

MusC **498 Proseminar** (2 cr). Prereq: perm.

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).

MusC **513-514 Seminar in Music Theory** (1-4 cr, max 8). Prereq: perm.

MusC **515-516 Seminar in Composition** (1-4 cr, max 8). Prereq: perm.

MusC **521 Musical Analysis** (3 cr, max 6). Analysis of selected musical compositions. Prereq: perm.

MusC **523-524 Counterpoint** (2 cr). Advanced contrapuntal writing, including canon and fugue. Prereq: MusC 421.

MusC **527 Advanced Orchestration** (2-4 cr, max 4). Orchestral scoring; recent trends. Prereq: MusC 427 or perm.

MusC **599** (s) **Research** (cr arr). Prereq: perm.

HISTORY AND LITERATURE

MusH **100 Music Appreciation** (3 cr). 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 **144 History of Music I** (2 cr). Primarily for and may be limited to majors. Medieval period through Renaissance. Prereq: perm of dept; coreq: MusC 142.

MusH **200** (s) **Seminar** (cr arr). Prereq: perm.

MusH **203** (s) **Workshop** (cr arr). Prereq: perm.

MusH **204** (s) **Special Topics** (cr arr).

MusH **243 History of Music II** (2 cr). Primarily for and may be limited to majors. Baroque through Rococo period of 18th century. Three lec per wk. Prereq: perm of dept; coreq: MusC 241.

MusH **244 History of Music III** (2 cr). Primarily for and may be limited to majors. Classic through Romantic period of 19th century. Three lec per wk. Prereq: perm of dept; coreq: MusC 242.

MusH **299** (s) **Directed Study** (cr arr). Prereq: perm.

MusH **321-322 Music in Western Civilization** (3 cr). History of music from early middle ages to the mid-20th century; musical styles in cultural context of each period. These courses may be taken in either order; students may enroll in 322 without having had 321. Prereq: MusH 100 or MusC 141 or perm.

MusH **340 American Music** (3 cr). Survey including native American and European folk influences, early American traditional music, and 20th-century popular and concert music.

MusH **400** (s) **Seminar** (cr arr). Prereq: perm.

MusH **403** (s) **Workshop** (cr arr). Prereq: perm.

MusH **404** (s) **Special Topics** (cr arr).

MusH **410 Historical Survey of Jazz** (2 cr). Origins, sources, evolution, styles, and performers of jazz music.

MusH **411 Music in the Medieval World** (2 cr). Prereq: perm.

MusH **412 Medieval and Renaissance Music** (3 cr). Prereq: perm.

MusH **413 Music in the Baroque Era** (3 cr). Prereq: perm.

MusH **414 Rococo and Preclassical Music** (2 cr). Prereq: perm.

MusH **415 Viennese Classical Period** (3 cr). Prereq: perm.

MusH **416 Music in the Romantic Era** (3 cr). Prereq: perm.

MusH **417 Late Nineteenth-Century Music** (2 cr). Prereq: perm.

MusH **418 Music in the Twentieth Century** (3 cr). Prereq: perm.

MusH **431-432 Piano Literature** (2 cr). Baroque through contemporary period. Prereq: perm.

MusH **435 Solo Vocal Literature** (2 cr). Baroque through contemporary period. Prereq: perm.

MusH **457 Symphonic Music** (3 cr). May be taken by students majoring in fields other than music, as well as music majors and minors. Masterworks of symphonic literature. Prereq: perm.

MusH **458 Chamber Music Literature** (2 cr). May be taken by students majoring in fields other than music, as well as music majors and minors. Masterworks of chamber music literature. Prereq: perm.

MusH **459 Opera Literature** (3 cr). May be taken by students majoring in fields other than music, as well as music majors and minors. Masterworks of operatic literature. Prereq: perm.

MusH **498 Proseminar** (2 cr). Prereq: perm.

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).

MusH **513-514 Seminar in Music History** (1-4 cr, max 8). Prereq: perm.

MusH **599** (s) **Research** (cr arr). Prereq: perm.

MUSIC TEACHING

MusT **200** (s) **Seminar** (cr arr). Prereq: perm.

MusT **203** (s) **Workshop** (cr arr). Prereq: perm.

MusT **204** (s) **Special Topics** (cr arr).

MusT **250** (s) **Instrumental Techniques** (1 cr, max 12). Group instruction. Problems in playing and teaching instruments in elementrary and secondary schools. Normally offered in violin, viola, cello, string bass, flute, clarinet, saxophone, oboe, bassoon, French horn, trumpet, trombone, and percussion. Each area may be repeated for cr. 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 **252 Reed Instrument Techniques** (1 cr). Group instruction. Problems of playing and teaching clarinet, oboe, and bassoon 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 Flute and Percussion Techniques** (1 cr). Group instruction. Problems of playing and teaching flute and the percussion instruments in elementary and secondary schools. Prereq: perm.

MusT **286 Instrumental Ensemble Rehearsal Techniques** (1 cr). Various techniques of rehearsing string, wind, and percussion players in an ensemble. May not be taken concurrently with MusT 386.

MusT **299** (s) **Directed Study** (cr arr). Prereq: perm.

MusT **381 Elementary School Music Methods** (3 cr). Same as ED 381. Curriculum, organization, and instructional materials for teaching general classroom music. Two lec and one lab per wk. Must be taken prior to enrolling in Ed 432. Prereq: MusC 120 or satisfactory demonstration of basic music skills.

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 prior to enrolling in Ed 432. Prereq: MusC 122 or 142.

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 per wk. Must be taken prior to enrolling in Ed 432. Prereq: MusC 122 or 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 per wk. Must be taken prior to enrolling in Ed 432. Prereq: MusC 122 or 142; prereq or coreq: MusT 383, MusA 387, 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).

MusT **433 Piano Pedagogy** (2 cr). Methods and materials of teaching piano. Prereq: perm.

MusT **437 Vocal Pedagogy** (2 cr). Methods and materials of teaching voice. Prereq: perm.

MusT **438** (s) **Practicum** (1 cr, max arr). Supervised teaching experience in such areas as applied performance studies, theory, music literature, and music education. Consult the time schedule of classes for areas currently offered. Prereq: upper-div standing and perm of dept.

MusT **441 String Pedagogy** (2 cr). Methods and materials of teaching stringed instruments. Prereq: perm.

MusT **463** (s) **Instrumental Techniques** (1-3 cr, max 6). Group instruction. Problems involved in the playing and teaching of instruments in elementary and secondary schools. Prereq: perm.

MusT **466 Marching Band Techniques** (1 cr). Techniques of drilling; materials for field and street maneuvers; preparation of shows. Prereq: MusC 242.

MusT **467 Literature for Instrumental Ensembles** (2 cr). Chamber music materials suitable for use in schools.

MusT **468 Literature for Vocal Ensembles** (2 cr). Chamber music materials suitable for use in schools.

MusT **481 New Concepts in Elementary Music Teaching** (3 cr). New and inventive elementary music teaching materials and methods.

MusT **486 Instrumental Ensemble Rehearsal Techniques** (1 cr). See MusT 286 for description.

MusT **498 Proseminar** (2 cr). Prereq: perm.

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).

MusT **513-514 Seminar in Music Teaching** (1-4 cr, max 8). Prereq: perm.

MusT **562 Choral Literature and Techniques** (2 cr). Prereq: MusT 385, MusA 387, or perm.

MusT **563 Orchestral Literature and Techniques** (2 cr). Prereq: MusT 386, MusA 387, or perm.

MusT **564 Band Literature and Techniques** (2 cr). Prereq: MusT 386, MusA 387, or perm.

MusT **581** (s) **College Music Teaching** (3 cr, max 6). Contemporary teaching techniques in one or more of the following fields: theory, music literature, piano, voice, woodwind instruments, stringed instruments, brass instruments, percussion, and music education. 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). Prereq: perm.

GENERAL

MusX **140 Convocation** (0 cr). For majors. Attendance at designated musical events. Graded on the basis of P or F.

MusX **200** (s) **Seminar** (cr arr). Prereq: perm.

MusX **203** (s) **Workshop** (cr arr). Prereq: perm.

MusX **204** (s) **Special Topics** (cr arr).

MusX **283-284 Diction for Singers** (2 cr). MusX 283: German. MusX 284: French.

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).

MusX **469 Research Techniques in Music** (2 cr). Principles of research design and techniques. Prereq: perm.

MusX **498 Proseminar** (2 cr). Prereq: perm.

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).

MusX **511 Introduction to Musical Scholarship** (2 cr). Orientation to graduate study; bibliography and research procedures.

MusX **599** (s) **Research** (cr arr). Prereq: perm.

PERFORMING ARTS SUMMER CAMP

MusZ **011** (s) **Musicianship Laboratory** (0 cr).

MusZ **021** (s) **Band** (0 cr).

MusZ **023** (s) **Chorus** (0 cr).

MusZ **025** (s) **Orchestra** (0 cr).

MusZ **027 Stage Band** (0 cr).

MusZ **029 Opera Workshop** (0 cr).

MusZ **035 Piano** (0 cr).

MusZ **036 Organ** (0 cr).

MusZ **041 Voice** (0 cr).

MusZ **043 Violin** (0 cr).

MusZ **044 Viola** (0 cr).

MusZ **045 Cello** (0 cr).

MusZ **046 String Bass** (0 cr).

MusZ **051** (s) **Woodwind Instruments** (0 cr).

MusZ **061** (s) **Brass Instruments** (0 cr).

MusZ **071** (s) **Percussion Instruments** (0 cr).

Native American Affairs

Jack R. Ridley, Director (Ctr. for Nat. Am. Dev., 730 Deakin Ave.). Faculty: John S. Morris, Jack R. Ridley.

NatAm **150 Reservational Lands and Resources in Idaho** (2 cr). Historical development of native American reservations in Idaho; emphasis on land utilization, economic classification, and the role of tribal government and the Bureau of Indian Affairs.

NatAm **160 Fundamentals of Reservation Management** (3 cr). Application of basic business principles to natural resource development in native American communities by native Americans.

NatAm **200; 400; 501** (s) **Seminar** (cr arr). Prereq: perm.

NatAm **203; 403; 503** (s) **Workshop** (cr arr). Prereq: perm.

NatAm **204; 404** (s) **Special Topics** (cr arr).

NatAm **299; 499; 502** (s) **Directed Study** (cr arr). Prereq: perm.

Naval Science

Richard C. Stockton, Dept. Head (101 Navy Bldg.). Faculty: Michael E. McCuddin, Russell W. Schumacher, Gary L. Scott, Richard K. Scott, Richard C. Stockton, David G. Vaurio.

NS **100 Drill/Laboratory** (0 cr). Required of all Navy-Marine Corps OEP students. One 1-hr lab per wk.

NS **101 Introduction to Naval Science** (3 cr). Missions and roles of major elements of naval service; naval objectives and organization of manpower, logistics, and support; basic weapons systems; design and structure of ships.

NS **102 Ships Systems I** (3 cr). Intro to propulsion systems of naval ships; nuclear and conventional power; damage control and auxiliary systems.

NS **200** (s) **Seminar** (cr arr). Prereq: perm.

NS **201 Ships Systems II** (2 cr). Systems approach to naval weapons: linear analysis of ballistics and weapons; weapons control, components, propulsion systems, trajectories, and damage criteria.

NS **202 Seapower and Maritime Affairs** (2 cr). National and international naval and merchant marine affairs; evolution of U.S. seapower; current trends in seapower development; effects on U.S. and foreign policy.

NS **299** (s) **Directed Study** (cr arr). Prereq: perm.

NS **301 Navigation** (3 cr). Theory, principles, and procedures of terrestrial and celestial navigation; intro to navigational aids, piloting, and chart reading. Three lec and one 1-hr lab per wk.

NS **302 Naval Operations** (3 cr). International "rules of the nautical road," relative motion, naval operations and tactics. Three lec and one 1-hr lab per wk. Prereq: 301.

NS **311 Evolution of Warfare** (3 cr). Alt/yrs 77-78. Evolution of warfare tactics, strategy, technology, and administration from Sun Tzu to Dayan. Three lec and one 1-hr lab per wk.

NS **400** (s) **Seminar** (cr arr). Prereq: perm.

NS **401 Naval Organization and Management** (3 cr). Principles and theories of management and management resources in the U.S. Navy; motivational theories and their application.

NS **402 Naval Leadership** (3 cr). Principles of military leadership; personal attributes, leadership styles; uniform code of military justice.

NS **412 Amphibious Operations** (3 cr). Alt/yrs 76-77. Amphibious doctrine from Gallipoli to the *Mayaquez*; command relationships; integration of supporting armies; USMC air-ground concept. Three lec and one 1-hr lab per wk.

NS **451 Navy Flight Indoctrination Program I** (2 cr). Includes 30 hrs intro to naval aviation emphasizing organization and mission, navigation, principles of flight, types of aircraft, and duties of naval aviators and flight officers.

NS **452 Navy Flight Indoctrination Program II** (2 cr). Includes 20 hrs ground school, 15 hrs flying time. Prereq: jr or sr midshipman and perm of dept.

NS **499** (s) **Directed Study** (cr arr). Prereq: perm.

Nuclear Engineering

William P. Barnes, Chairman, Nuclear Engineering Committee, (202 Gauss Engr. Lab.). Faculty: Jasper R. Avery, William P. Barnes, Jack I. Hagen, Dwight S. Hoffman.

RELATED FIELDS: For other courses offerded in the nuclear field, see Chem 416, Chem 513, Phys 465, and Phys WS&R565.

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: R120 or perm.

NE **R221 Analysis of Nuclear Engineering Systems II** (3 cr). Primarily for technologists. Continuation of R220. Heat removal, reactor design, fuel recycle, and waste disposal. Prereq: R220 or perm.

NE **223 Introduction to Nuclear Engineering** (2-3 cr). For students in all fields, particularly nonengineers. Broad nonquantitative survey of nuclear engineering: production of useful energy from nuclear fuel, disposal of nuclear wastes, and economical and social aspects.

NE **360 Nuclear Reactor Engineering I** (3 cr). Nuclear and atomic physics, measurements, health physics, nuclear reactor theory, shielding, and control. Two lec and one 2-hr lab per wk. Prereq: perm.

NE **380 Fallout Shelter Analysis** (2 cr). Primarily for practicing engineers and architects. Determination of radiological protection of buildings when subjected to nuclear fallout. Prereq: perm.

NE **404** (s) **Special Topics** (cr arr).

NE **460 Nuclear Reactor Engineering II** (3 cr). Nuclear reactor design problems in thermodynamics, fluid flow, heat transfer, fuel preparation, waste disposal, and materials selection; discussion of reactor types. Prereq: 360 or perm.

NE **R462 Nuclear Reactor Codes and Standards** (3 cr). ASME nuclear codes and standards; their contribution to nuclear power plant design and operation. (Cr in this course may not be counted toward a degree.)

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 **473 Nuclear Instrumentation** (3 cr). Alt/yrs 77-78. Radiation

detection instruments and associated circuitry as applied to nuclear engineering. Prereq: EE 314 or equiv.

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 **R550 Topics in Advanced Nuclear Engineering** (3 cr). Prereq: perm.

NE **WS556 Nuclerar Engineering Laboratory** (2 cr). WSU ChE 516. Detection and measurement of phenomena involving neutrons in reactor assemblies; applications of theory of neutron distribution and control. Prereq: perm.

NE **R565 Reactor Engineering** (3 cr). Radiation shielding, materials, instrumentation and controls, separation of stable isotopes, chemical separation and processing, and special techniques. Prereq: Phys ID566 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.

Office Administration

James A. Bikkie, Director, Division of Teacher Education (210 Educ. Bldg.). Faculty: Geraldine A. Dacres, Robert M. Kessel, Jean C. Rudolph.

OAd **101-102-103 Typewriting I-II-III** (2 cr). OAd 101: development of skill sufficient for personal use. OAd 102: speed and control to occupational competence levels. OAd 103: occupational competence, including correspondence, manuscripts, legal documents, and other special problems.

OAd **115-116 Shorthand I-II** (4 cr). OAd 115: theory of Gregg shorthand simplified. OAd 116: dictation and introduction to transcription.

OAd **185 Machine Calculation** (2 cr). Operation of commonly used office adding-calculating machines for the solution of business problems.

OAd **200** (s) **Seminar** (cr arr). Prereq: perm.

OAd **203** (s) **Workshop** (cr arr). Prereq: perm.

OAd **204** (s) **Special Topics** (cr arr).

OAd **271-272 Shortland III-IV** (3 cr). OAd 271: speed development. OAd 272: transcription skill to occupational competency level. Prereq: perm.

OAd **299** (s) **Directed Study** (cr arr). Prereq: perm.

OAd **C312 Local Government Records Management** (2 cr). Intended to give city clerks and other city officials a knowledge of records management, microfilming, record-keeping functions; acquaint city officials with the legal requirements of destruction and disposal of city records in Idaho and the practices of a number of city officials in Idaho in indexing city council meetings and maintaining city council files.

OAd **313 Office Management** (2 cr). Application of generally accepted principles to administrative services.

OAd **395-396 Secretarial Procedures** (3 cr). OAd 395: filing systems; operation of transcribing and duplicating machines; secretarial duties, responsibilities, and procedures. OAd 396; advanced dictation and transcription. Prereq: perm.

OAd **400** (s) **Seminar** (cr arr). Prereq: perm.

OAd **403** (s) **Workshop** (cr arr). Prereq: perm.

OAd **404** (s) **Special Topics** (cr arr).

OAd **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

OAd **499** (s) **Directed Study** (cr arr). Prereq: perm.

Philosophy

Francis Seaman, Chairman (111 Admin. Bldg.). Faculty: Nicholas F. Gier, Alan H. Goldman, Francis Seaman.

Phil **101 Introduction to Philosophy: Types of Philosophy** (3 cr). Not open to students who have taken 103. Chief types of philosophic thought through a study of their more distinguished representatives; Plato, Lucretius, Descartes, Berkeley, and James.

Phil **103 Introduction to Philosophy: Principles and Problems** (3 cr). Not open to students who have taken 101. Nature of philosophy through a consideration of certain key philosophic questions reflecting student interest; explored by methods appropriate to their solution.

Phil **107 Critical Thinking** (1 cr). Evaluation by informal methods of arguments current in the market place. Not open to students who have taken 211. After this course, 211 carries 2 cr.

Phil **111 Introduction to the Philosophy of Religion** (2-3 cr). Overview of major world religions with special attention to similarities and differences in their conceptions of man and his relation to nature and to the divine.

Phil **201 Ethics** (3 cr). Development of ethical thought. Also offered by correspondence study. Prereq: 101 or 103 or soph standing.

Phil **204** (s) **Special Topics** (cr arr).

Phil **211 Logic** (3 cr). Methods of reasoning; function of logic in the methods of science. Prereq: 101 or 103 or soph standing.

Phil **305 Philosophy of Religion** (3 cr). Current dialogue between the religious and the secular.

Phil **309 History of Ancient Philosophy** (3 cr). Philosophic and political thought from the early Greeks through the Middle Ages. Also offered by correspondence study.

Phil **310 History of Modern Philosophy** (3 cr). Philosophic and political thought from Descartes through Kant. Also offered by correspondence study.

Phil **400** (s) **Seminar** (cr arr). Prereq: perm.

Phil **401 Philosophy of the Arts** (3 cr). (121). Chief conceptions of the nature of the arts and their role in society.

Phil **403 Advanced Logic** (3 cr). Ideas and techniques of contemporary logic.

Phil **404** (s) **Special Topics** (cr arr).

Phil **411 Social Philosophy** (3 cr). Philosophical theories of the origin and nature of society and of the state.

Phil **412 Philosophy of Science** (3 cr). Basic concepts of modern science.

Phil **414 Ethical Theory** (3 cr). Main points of view.

Phil **415-416** (s) **Contemporary Philosophy** (3 cr). Movements and figures of the 20th century such as logical positivism, linguistic analysis, Russell, Wittgenstein, and Sartre.

Phil **421 Existentialism** (3 cr). Readings in such writrers as Kierkegaard, Nietzsche, Camus, and Sartre.

Phil **422 Philosophical Ideas in Recent Literature** (3 cr). Ethical, social, and political trend; Nietzsche, Stein, Sartre, Maugham, Joyce, Hardy.

Phil **425 American Philosophy** (3 cr). Philosophical ideas of the U.S.; emphasis on period since 1875.

Phil **431 Theory of Knowledge** (3 cr). Analysis of the nature of knowledge; survey of various philosophical positions on the sources and extent of what we know.

Phil **432 India's Philosophies** (3 cr). Survey of the Indian philosophical tradition, including Upanishads, Bhagavad Gita, Buddhism, Nyaya-Vaiseshika, Samkhya-Yoga, and Vendanta.

Phil **442 Philosophy of Mind** (3 cr). Recent discussion of the concept of mind, action, emotion, and private language; identity theory.

Phil **499** (s) **Directed Study** (cr arr). Prereq: perm.

Phil **500 Master's Research and Thesis** (cr arr).

Phil **501** (s) **Seminar** (cr arr). Normally offered in history of philosophy, value theory, contemporary philosophy, philosophy of science, metaphysics, and medieval philosophy. Prereq: perm.

Phil **502** (s) **Directed Study** (cr arr). Normally offered in history of philosophy, value theory, contemporary philosophy, philosophy of science, and metaphysics. Prereq: perm.

Phil **599** (s) **Research** (cr arr). Prereq: perm.

Photography

Don H. Coombs, Director, School of Communication (214 Univ. Classroom Ctr.). Faculty: William P. Woolston.

Photo **200; 400** (s) **Seminar** (cr arr). Prereq: perm.

Photo **203; 403** (s) **Workshop** (cr arr). Prereq: perm.

Photo **204; 404** (s) **Special Topics** (cr arr).

Photo **281 Understanding Photography** (3 cr). Basic skills of camera handling and darkroom technique; emphasis on learning to see. Two lec and two 3-hr labs per wk.

Photo **288 Basic Film** (3 cr) (RadTV 488). Basics of motion picture production using the Super 8mm format; students may need to furnish own camera and film. Two lec and one lab per wk.

Photo **299; 499** (s) **Directed Study** (cr arr). Prereq: perm.

Photo **381 A Personal Way of Seeing** (3 cr). Refining photographic skills to give more control of the medium; exploration of various materials and techniques; sharpening the ability to see; group critique. Two lec and two 3-hr labs per wk. Prereq: 281.

Photo **401 History of Photography** (3 cr). Growth and development of photography in its various forms; scientific and visual innovations. Prereq: 281.

Photo **481 Experimental Photography** (3 cr). Exploration, examination, and investigation of various manipulative and experimental uses of the medium, "color," nonsilver, and experimental darkroom techniques. Two lec and two 3-hr labs per wk. Prereq: 381.

Photo **485 Photojournalism** (3 cr). Perspective photojournalism; realistic assignments; topics include history of photojournalism and newspaper photography. Two lec and two 3-hr labs per wk. Prereq: 381.

Physical Education

Leon G. Green, Director, Div. of Health, Physical Education and Recreation (203 Mem. Gym). Faculty: Edith Betts, Kathy D. Clark, Leon G. Green, Judith A. Haas, Chester D. Hall, Bonnie J. Hultstrand, Michael W. Keller, Eric B. Kirkland, Calvin W. Lathen, Douglas MacFarlane, Dwaine J. Marten, Janice S. Onuska, Hazel C. Peterson, Glen H. Porter, Charles J. Thompson, Diane B. Walker, Robert K. Whitehead, Virginia Wolf, Frank Young.

ACTIVITY COURSES

NOTE: PE 105, 106, 107, and 108 may be repeated for cr if the student engages in a different activity or level of the same activity. See general academic regulation "J-3-b" in part 3 of this catalog for requirements in physical education.

PE **105** (s) **Dance** (1 cr, max arr). See Dan 105.

PE **106** (s) **Individual and Dual Sports** (1 cr, max arr). Bowling, racket sports, fencing, golf, gymnastics, conditioning, backpacking, biking, cross-country skiing, etc. Two days of field trips may be a part of the course requirements for such activities as backpacking, biking, etc. Two hrs per wk. Graded on the basis of P or F.

PE **107** (s) **Team Sports** (1 cr, max arr). Field sports, volleyball, basketball, and softball. Two hrs per wk. Graded on the basis of P or F.

PE **108** (s) **Swimming** (1 cr, max arr). All levels of proficiency, including life-saving, diving, and scuba. Two hrs per wk. Graded on the basis of P or F.

PROFESSIONAL COURSES

PE **111 Fundamentals of Movement** (2 cr). Physical principles, kinesthetic patterns, and rhythmic structure involved in fundamental movement activities. One lec and two labs per wk.

PE **115 Team Sports Backgrounds** (2 cr). Field sports, softball, volleyball, and basketball. Four hrs per wk.

PE **116-117 Individual Sports Backgrounds I-II** (2 cr). PE 116: racket games and golf. PE 117: bowling, archery, fencing, track, and field. Four hrs per wk.

PE **126 Weight Training and Conditioning** (1 cr). Two lec-labs per wk.

PE **138 Swimming** (1 cr). Advanced swimming and diving. Two hrs per wk. Prereq: proficiency or perm.

PE **139 Gymnastics** (2 cr). Teaching techniques and skills of gymnastics. One lec and one 2-hr lab per wk.

PE **141 Wrestling** (1 cr). Two lec-labs per wk.

PE **142 Tumbling and Floor Exercise** (2 cr). Emphasis on skill development and progressions from elementary through high school. One lec and two labs per wk.

PE **145 Introduction to Physical Education** (2 cr). Survey, philosophy, aims, and objectives.

PE **C147 History of Physical Education** (2 cr). Backgrounds and development; trends in various countries; modern trends in the U.S.

PE **200** (s) **Seminar** (cr arr). Prereq: perm.

PE **203** (s) **Workshop** (cr arr). Prereq: perm.

PE **204** (s) **Special Topics** (cr arr).

PE **226 Officiating Women's Sports** (1 cr). Officiating in team and individual sports (20 hrs officiating in the intramural program included). Section A: team sports (hockey, volleyball, basketball); section B: individual sports (gymnastics, swimming, track and field).

PE **243 Highly Organized Games** (2 cr). Techniques and skills of games of high organization and lead up activities. One lec and two labs per wk.

PE **244 Life Saving** (1 cr). Students passing the Red Cross tests receive advanced swimming and life saving certificates. One lec and two labs per wk. Prereq: 138 or perm.

PE **252 Elementary School Physical Education** (2 cr). Organization and teaching methods. Three hrs per wk. Also offered by correspondence study.

PE **266 Aquatic Instructor's Course** (2 cr). Methods. Students passing Red Cross tests will receive instructor's certificates. Three hrs per wk. Prereq: senior life-saving and 18 yrs old.

PE **271 Interpretation of Physical Education, Health, and Recreation** (3 cr). Importance of these related fields to general education from the Greeks to the present day.

PE **299** (s) **Directed Study** (cr arr). Prereq: perm.

PE **317** (s) **Recreational Skills** (1 cr, max 3). For elementary and secondary school teachers and recreation leaders, with basic skills and methods of teaching. Areas normally offered are fly fishing, marksmanship, and scuba. One lec and three hrs lab per wk per cr. Students may enroll for more than one of the areas. Prereq: perm.

PE **322 Teaching Individual Sports** (2 cr). Methods for majors and minors.

PE **323 Teaching Team Sports** (2 cr). Methods for majors and minors. Prereq: 322.

PE **326 Drill Team** (2 cr). Alt/yrs. Techniques, organization, and training of drill teams.

PE **341 Basketball Coaching Methods** (2 cr).

PE **342 Baseball Coaching Methods** (2 cr).

PE **343 Track Coaching Methods** (2 cr).

PE **344 Football Coaching Methods** (2 cr).

PE **C&X371 Principles of Physical Education** (3 cr). Interpretation of aims and objectives.

PE **387 Intramural and Athletic Officiating** (3 cr). Intramural programs in schools; rules and methods of officiating athletic contests; includes 30 hrs of officiating in the intramural department.

PE **400** (s) **Seminar** (cr arr). Prereq: perm.

PE **403** (s) **Workshop** (cr arr). Prereq: perm.

PE **404** (s) **Special Topics** (cr arr).

PE **418 Physiology of Exercise** (3 cr). Effects of physical activity on the circulatory, respiratory, and other systems. Two lec and one 2-hr lab per wk. Prereq: Zool 119.

PE **419 Human Kinesiology** (3 cr). The body movement; anatomical and mechanical analysis. Prereq: Zool 119.

PE **424 Adapted Physical Education** (2 cr). Adapting physical education programs to meet individual needs.

PE **425 Directions in Women's Sports** (3 cr). Background analyses of women's sports; nature and value of sports with educational, social, political, and economic implications; controlling organizations in girls' and women's sports and present trends including influence of the media.

PE **427 Methods and Materials in Physical Education** (2 cr). For majors. Practices, problems, program planning, and teaching methods.

PE **430 Advanced Techniques and Skills** (2 cr). Designed to offer opportunity for increasing knowledge, skill, and teaching techniques in specific motor activities.

PE **450 Coaching Clinic** (1-2 cr, max 2). Alternate summers. Procedures and techniques in coaching high school and college sports. Consult the summer bulletin for information.

PE **467 Physical Education and Recreation for the Handicapped** (3 cr). Adaptation of these programs to the mentally and physically handicapped child.

PE **481 Tests and Measurements** (3 cr). Testing in physical education. Prereq: Psych 100 or 205.

PE **496 Organization and Administration** (3 cr). Health and physical education programs in the public schools. Also offered by correspondence study.

PE **497 Sports and Athletic Problems** (3 cr). Scheduling, facilities, equipment, maintenance, budgeting, and public relations in the school. Section A: men; section B: women.

PE **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

PE **499** (s) **Directed Study** (cr arr). Prereq: perm.

PE **500 Master's Research and Thesis** (cr arr).

PE **501** (s) **Seminar** (cr arr). Prereq: perm.

PE **502** (s) **Directed Study** (cr arr). Prereq: perm.

PE **503** (s) **Workshop** (cr arr). Prereq: perm.

PE **504** (s) **Special Topics** (cr arr).

PE **506 Foundations of Motor Skills** (3 cr). Application of psychological, kinesiological, and mechanical principles leading to an understanding of motor activity.

PE **518 Advanced Principles of Physiological Assessments of Human Performance** (3 cr). Principles and methods essential to the experimental approach to physiological performance problems. Two lec and one lab per wk.

PE **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. programs.

PE **544 Program Development** (3 cr). Developing physical education and sport programs; emphasis on new methods and curriculum content. Two days of field trips may be required.

PE **550 The Psycho-Social Dimensions of Sport** (3 cr). Psychological and sociological aspects of sport as they relate to player, coach, and spectators; emphasis on sport and its relationship to social stratification, social discrimination, social change, and personality characteristics.

PE **581 Research in Physical Activity, Theory, and Design** (1-6 cr, max 6). Principles of scientific inquiry and their application to the study of physical activity; individual research projects.

PE **591 Social Basis of the Profession** (3 cr). Democratic philosophy for physical education, health education, and recreation; principles and objectives as related to the development of the individual and man's cultural heritage.

PE **596 Advanced Organization and Administration** (3 cr). Policies and problems; classification of children, the time schedule, teaching staff, training, load, office organization and administration, state laws, and finances.

PE **597** (s) **Practicum** (cr arr). Application of theories and techniques. Graded on the basis of P or F. Prereq: perm.

PE **598** (s) **Internship** (cr arr). Supervised field experience in an appropriate public or private agency. Graded on the basis of P or F. Prereq: perm.

PE **599** (s) **Research** (cr arr). Prereq: perm.

Physics

Henry Willmes, Dept. Chairman (13 Phys. Sci. Bldg.). Faculty: Giancarlo Baldini, Michael A. Browne, Lawrence W. Davis, Philip A. Deutchman, Thomas E. Ingerson, Lawrence H. Johnston, Robert J. Kearney, George Patsakos, Edson R. Peck, Everett F. Sieckmann, Ya-Yue Van, Gary E. Watson, Henry Willmes.

Phys **101 Fundamentals of Physical Science** (4 cr). Primarily for students in nonscientific fields. General, nonmathematical study of chemistry and physics and their role in society; quantitative aspects of science presented through demonstrations, experiments, and problem-solving; basic physical laws and concepts, and their applications. Three lec and one 2-hr lab per wk.

Phys **105 Physics and Society** (3 cr). Nonmathematical, penetrating investigation of the interaction of science and society; emphasis on current topics, including radioactivity; pollution, transportation, communications, weapons, power generation, and ecology; exploration of the ethical, technological, and economic impact of science. Recommended companion course: 106.

Phys **106 Physics and Society Laboratory** (1 cr). Relevant lab work to accompany 105. One 3-hr lab per wk. Coreq: 105.

Phys **111 Elementary Physics** (3-4 cr). Not open to students who have taken 113 or 220. Survey of classical and modern physics for nonscience majors. Three lec and one 2-hr lab per wk.

Phys **113-114 General Physics** (3 cr). Phys 113 is not open to students who have taken 111 or 220; 114 is not open to students who have taken 221. Phys 113: mechanics, sound, and heat. Phys 114: magnetism, electricity, light, and modern physics. Three lec and one rec per wk. Phys 113 also offered by correspondence study. Prereq: Math 140; 113 for 114.

Phys **115-116 General Physics Laboratory** (1 cr). Lab to accompany 113-114. One 2-hr lab per wk.

Phys **200** (s) **Seminar** (cr arr). Prereq: perm.

Phys **203** (s) **Workshop** (cr arr). Prereq: perm.

Phys **204** (s) **Special Topics** (cr arr).

Phys **R205-R206-R207 Principles of Physics** (3 cr). Phys 205: mechanics. Phys 206: electricity and magnetism. Phys 207: heat, sound, and optics. Prereq: Math R181 and perm.

Phys **R208-R209 Introduction to Radiological Health Physics** (3 cr). Sources, properties, detection, and measurement of radiation; interaction of radiation with matter and with biological systems; shielding; contamination, waste disposal; control of radiation hazards. Prereq: 113-114.

Phys **220 Engineering Physics I—Mechanics** (3 cr). Basics of mechanics; statics of rigid bodies; one- and two-dimensional linear and rotational motion; simple harmonic motion; Newton's law of gravitation; problems on static forces and torques, and the motion of general bodies under the laws of simple mechanics.

Two lec, one 2-hr lab, and one quiz section per wk. Prereq or coreq: Math 180.

Phys **221 Engineering Physics II—Electricity and Magnetism** (3 cr). Coulomb's, Ampere's, Faraday's, and Gauss's laws of electricity and magnetism; simple electrical circuits; elementary electronics; Maxwell's equations; laws of electromagnetic radiation; laws of magnetic materials (ferromagnetism, paramagnetism, etc.). Two lec, one 2-hr lab, and one quiz section per wk. Prereq: 220, or ES 211, or equiv; prereq or coreq: Math 190.

Phys **222 Engineering Physics III—Wave Motion** (3 cr). Nature and properties of wave motion with applications to sound, optics, and elementary atomic physics; laws of reflection and refraction with treatment of geometrical and physical optics, lasers, interference and diffraction, construction of telescopes and microscopes, color, polarization, optical activity, electro-optical effects, elementary acoustics, propagation of sound waves, interference and diffraction of sound, and kinetic theory. Two lec, one 2-hr lab, and one quiz section per wk. Prereq: 221; prereq or coreq: Math 200.

Phys **299** (s) **Directed Study** (cr arr). Prereq: perm.

Phys **304 General Astronomy** (3 cr). Descriptive and physical astronomy.

Phys **307 Sound Waves and Acoustics** (3 cr). Sources of sound, propagation of sound waves through elastic media, and architectural acoustics. Prereq: 114 or 222, Math 200, or perm.

Phys **308 Acoustics Laboratory** (1 cr). Basic experiments in physical, physiological, musical, and architectural acoustics. One 3-hr lab per wk. Coreq: 307.

Phys **R309 Fundamentals of Radiation Biophysics** (3 cr). Nuclear physics, interaction of radiation with matter, detection of radiation, radiation dose limits, theory of ionization, dosimetry, dosimetry techniques, biological and medical effects of radiation, radiation shielding, radiation protection standards, counting statistics, and related topics. Prereq: perm.

Phys **R311 Health Physics in Industrial Safety** (3 cr). Basic concepts of physics, biology, and radiation control as related to personnel protection from ionizing radiation.

Phys **314 Experimental Astronomy** (1 cr). Experimental techniques. One 3-hr lab per wk. Prereq or coreq: 304.

Phys **315 Biophysics** (3 cr). Intro to the physics of biological processes and photobiology; interaction of radiation with biological systems; intramolecular and intermolecular forces and their relation to biological structure; study of methods of investigating living matter, including X-ray diffraction, fluorescence and magnetic resonance. Prereq: 113-114 or equiv; Biol 201 recommended.

Phys **R317 Electronics** (3 cr). Electron ballistics, vacuum and gaseous tubes. Prereq: perm.

Phys **321-322 Analytical Mechanics** (3 cr). Statistics; kinematics and dynamics of a particle; system of particles; rigid continuous media; intro to Lagrange's equations. Prereq: 114 or 222, and Math 200.

Phys **330 Energy Sources** (3 cr). Physics of existing and ultimate sources of energy; emphasis on solar and wind energy. Prereq: 220-221 or 113-114, and Math 180.

Phys **341-342 Electricity and Magnetism** (3 cr). Theory using vector methods; electrostatics, magnetostatics, electromagnetism, analysis of AC and DC circuits; Maxwell's equations; radiation and propagation of electromagnetic waves. Prereq: 114 or 222, and Math 200.

Phys **343 Electricity and Magnetism Laboratory** (1 cr). Lab to accompany 342. Use, calibration, and care of precision electrical engineering instruments. One 3-hr lab per wk.

Phys **351 Elementary Quantum Mechanics** (3 cr). Methods; one-dimensional harmonic oscillator, free particle, rectangular potential barrier, hydrogen atom, and perturbation theory. Prereq: 360; coreq: 322.

Phys **360 Introduction to Modern Physics—Engineering Physics IV** (3 cr). Fundamentals of qualitative and quantitative description of atomic and nuclear physics; quantum theory, radioactivity, relativity, fusion and fission, spectra, X-rays, neutron physics, elementary particles, and solid state. Prereq: 114 or coreq: 222.

Phys **361 Introduction to Modern Physics Laboratory** (1 cr). Lab to accompany 360. One 3-hr lab per wk.

Phys **400** (s) **Seminar** (cr arr). Prereq: perm.

Phys **403** (s) **Workshop** (cr arr). Prereq: perm.

Phys **404** (s) **Special Topics** (cr arr).

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 per wk. Prereq: 222 and Math 200 for 411; 411 for 412.

Phys **413 Advanced Physics Laboratory** (2 cr). Two 3-hr labs per wk. Prereq or coreq: 412.

Phys **431-432 Thermodynamics and Kinetic Theory** (3 cr). Laws of thermodynamics, kinetic theory, and their application to topics in physics; material chosen to prepare students for advanced study in statistical physics. Coreq: 360.

Phys **443 Optics** (3 cr). Geometrical optics and photometry, interference, diffraction, double refraction, and polarization; applications to modern optical instruments. Prereq: 114 or 222, and Math 200.

Phys **444 Quantum Optics** (3 cr). Theory and applications 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: 221-222 or 114, and Math 180; coreq: 446.

Phys **445 Optics Laboratory** (1 cr). Lab to accompany 443. Experiments in optics of lenses, photometry, lasers, interferometry, and polarized light. One 3-hr lab per wk.

Phys **446 Quantum Optics Laboratory** (1 cr). One 3-hr lab per wk. Coreq: 444.

Phys **463-R464 Introduction to Solid State** (3 cr). Physics of bulk matter; structure and types of solids, elastic and thermal properties of solids, electrical and magnetic properties of solids, theory of conduction in metals and semiconductors. Coreq: 322.

Phys **465 Introduction to Nuclear Physics** (3 cr). Elementary particle, structure of the nucleus, processes of transformation, interaction of nuclear radiation with matter, nuclear reactions, particle accelerators, fission, nuclear reactors, and cosmic rays. Prereq: 360.

Phys **466 Introduction to Nuclear Physics Laboratory** (1 cr). Lab to accompany 465. One 3-hr lab per wk.

Phys **R471 Introduction to Theoretical Physics** (3 cr). Vector and tensor methods in conjunction with Newtonian and Lagrangian methods in solving problems of mechanical systems. Prereq: general physics, differential equations, and perm.

Phys **485 Astrophysics** (3 cr). Structure and evolution of stars and star systems; celestial mechanics; special and general relativity; cosmology. Prereq: 304, 360, Math 200, or perm.

Phys **486 Advanced Astronomy Laboratory** (1 cr). Advanced professional work in experimental astronomy; photography, photometry, spectrometry, radio astronomy. Prereq: 314 or perm.

Phys **491 Proseminar** (1 cr). Recent developments. Prereq: sr standing in physics.

Phys **497 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

Phys **498 Research** (1-6 cr, max 6). Undergraduate thesis. Prereq: jr standing in physics and perm of dept.

Phys **499** (s) **Directed Study** (cr arr). Prereq: perm.

Phys **500 Master's Research and Thesis** (cr arr).

Phys **501** (s) **Seminar** (cr arr). 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).

Phys **R506 Radiological Shielding and Design Concepts** (3 cr). Radiation shielding and engineering design principles of

materials, structures, and facilities. Prereq: basic differential and integral calculus, and perm.

Phys **507-508 Modern Techniques of Science Instruction in Physics** (2 cr). Same as Ed 587-588. Emphasis on extent and nature of subject-matter material for secondary schools and colleges.

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 per wk. Prereq: 412 and perm.

Phys **R517 Radiation Dosimetry Instrumentation** (3 cr). Radiation detection methods, statistics, instrumentation, and dose determination; emphasis on radiation protection.

Phys **R518 Radiation Biology** (3 cr). Mechanisms and patterns of energy deposition by ionizing radiation in biological systems.

Phys **R519 Radiation Physiology** (3 cr). Selected topics from human physiology and methods of internal dosimetry. Prereq: radiation biology and calculus.

Phys **521 Advanced Mechanics** (3 cr). Classical mechanics; Lagrange's and Hamilton's principle, 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: 322.

Phys **531 Statistical Mechanics** (3 cr). Classical statistical mechanics of Maxwell, Boltzmann, and Gibbs; Maxwell-Boltzmann distribution law; Boltzmann's H-theorem, quantum statistical mechanics; Bose-Enstein and Fermi-Dirac statistics; applications to problems in thermodynamics. Prereq: 431, 551, or perm.

Phys **541-542 Electromagnetic Theory** (3 cr). Including 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: 322, 342.

Phys **551-552; 553 Quantum Mechanics** (3 cr). Phys 551-552: physical basis; Schroedinger wave formulation, Heisenberg matrix formulation, transformation theory, approximation methods, radiation theory, theory of scattering; some applications to atomic systems. Phys 553: relativistic quantum mechanics, field theory and quantum electrodynamics; applications to theory of radiation, pair production, and scattering. Prereq: 322, 360 for 551-552; 552 for 553.

Phys **ID561 Atomic Spectra and Atomic Structure** (3 cr). Experimental methods for the production and investigation of spectra, interpretation of spectral series, stationary states, spinning electrons and fine line structure, and vector models; Zeeman and Stark effects; intensity of spectral lines. Prereq: 351 or 551.

Phys **ID562 Molecular Spectra** (3 cr). Molecular spectra and their relations to molecular structure; emphasis on diatomic and triatomic molecules. Prereq: ID561 or perm.

Phys **563-564 Solid State Physics** (3 cr). Modern theory of metals, semiconductors, and insulators; crystal structure, thermal, electrical, and magnetic properties of solids, band theory of solids, crystal imperfections, semiconductors, superconductivity, and photoconductivity. Prereq: 342; prereq or coreq: 551.

Phys **WS&R565-ID566 Nuclear Physics** (3 cr). 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, beta decay, nuclear shell structure, nuclear models, mesons and meson theory; topics in high energy physics. Prereq: 465, and 351 or 551.

Phys **571-572 Theoretical Physics** (3 cr). Methods and problems. Prereq: 322 or perm.

Phys **573 Physical Applications of Group Theory** (3 cr). Intro to group theory with applications to atoms, molecules, and solids; emphasis on applications; no previous knowledge of group theory assumed. Prereq: 551 or equiv.

Phys **581** (s) **Topics in Advanced Physics** (1-9 cr, max 9). Topics of interest to students and staff. Three lec per wk.

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 as 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 equiv.

Phys **R588 Experimental Nuclear Physics** (3 cr). Experimental methods of interpretation of experimental measurements to determine the static and dynamic properties of nuclei. Prereq: 360 and perm.

Phys **R589 Advanced Reactor Theory** (3 cr). Integrodifferential Boltzmann equation, integral Boltzmann equation; Pn approximation; double Pn approximation; diffusion theory as obtained from transport theory; microscopic heterogeneous reactor theory, small source theory; reactor kinetics; perturbation theory; burnable poisons and control rod theory. Prereq: perm.

Phys **597** (s) **Practicum** (cr arr). Prereq: perm.

Phys **598** (s) **Internship** (cr arr). Prereq: perm.

Phys **599** (s) **Research** (cr arr). Prereq: perm.

Phys **600 Doctoral Research and Dissertation** (cr arr).

Physiology

Faculty: Sidney M. Beck, Arthur A. Boe, Richard C. Bull, C. Seymour Card, Ross E. Christian, Steven L. Davis, Homer J. Ferguson, Arthur M. Finley, J. Preston Jones, Duane J. Le Tourneau, Glenn C. Lewis, Rodney A. Mead, Glen A. Murray, Lawrence E. O'Keefe, Charlie F. Petersen, Glen H. Porter, Lorin W. Roberts, Arthur W. Rourke, R. Garth Sasser, Clarence I. Seely, Howard W. Smith, A.C. Wiese.

Teaching and research programs in physiology are available in several colleges and departments of the university. Master's and doctoral programs with concentrations in animal or plant physiology are available through the Department of Animal Industries, the Department of Biological Sciences, and the Department of Plant and Soil 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 course sections.

ANIMAL PHYSIOLOGY

Anl **451 Endocrine Physiology** (3 cr).

Anl **452 Physiology of Reproduction and Lactation** (3 cr).

Anl **453 Physiology of Reproduction and Lactation Laboratory** (1 cr).

Anl **511 Animal Nutrition** (3 cr).

Anl **WS512 Energy Metabolism** (3 cr).

Anl **ID513 Microbiology and Physiology of Ruminant Nutrition** (3 cr).

Anl **514 Physiology of Nonruminant Nutrition** (3 cr).

Anl **551 Advanced Endocrine Physiology** (3 cr).

Bact **503 Physiology of Bacteria** (2-4 cr).

Ent **484 Insect Anatomy and Physiology** (4 cr).

Ent **ID582 Insect Physiological Ecology** (4 cr).

PE **418 Physiology of Exercise** (3 cr).

PE **518 Advanced Principles of Physiological Assessments of Human Performance** (3 cr).

Psych **441 Physiological Psychology** (3 cr).

VS **371 Anatomy and Physiology** (4 cr).

Zool **119 Human Anatomy and Physiology** (5 cr).

Zool **411 Comparative Vertebrate Reproduction** (3 cr).

Zool **412 Comparative Vetebrate Reproduction Laboratory** (2 cr).

Zool **414 Cell Physiology** (3 cr).

Zool **415 Cell Physiology Laboratory** (2 cr).

Zool **416 Mammalian Physiology** (4 cr).

Zool **417 Endocrine Physiology** (3 cr).

Zool **513 Comparative Animal Physiology** (3 cr).

PLANT PHYSIOLOGY

Biochem **461 Plant Biochemistry** (3 cr).

Biochem **462 Plant Biochemistry Laoboratory** (1 cr).

Bot **311 Plant Physiology** (3 cr).

Bot **312 Plant Physiology Laboratory** (2 cr).

Bot **413 Mineral Nutrition** (3 cr).

Bot **512 Plant Growth Substances** (3 cr).

PlSc **401 Crop Physiology** (3 cr).

PlSc **517 Tree Physiology** (3 cr).

PlSc **538 Properties and Function of Herbicides** (2 cr).

Soils **446 Soil Fertility** (3 cr).

Soils **448 Mineral Nutrition** (3 cr).

Soils **ID515 Chemistry of Plant Nutrients** (3 cr).

Soils **ID&WS546 Advanced Soil Fertility** (3cr).

Plant Sciences

Lucas Calpouzos, Head, Dept. of Plant and Soil Sciences (328 Iddings Wing, Ag. Sci. Bldg.). Faculty: Arthur A. Boe, Robert H. Callihan, Lucas Calpouzos, James R. Davis, Ronald D. Ensign, Harry S. Fenwick, Arthur M. Finley, James W. Guthrie, Audus W. Helton, Robert E. Higgins, Gale E. Kleinkopf, Walter J. Kochan, John J. Kolar, Marshall J. LeBaron, Gary A. Lewis, Donald J. Makus, Hugh C. McKay, Glen A. Murray, Edward W. Owens, Warren K. Pope, R. Robert Romanko, Clarence I. Seely, William R. Simpson, Walter C. Sparks, Gilbert F. Stallknecht, David L. Stiers, Paul J. Torell, Roscoe D. Watson.

PlSc **102 Plant Sciences in Agriculture** (3 cr). Importance and distribution of economic plants; relationship of plants to man's welfare; basic plant growth processes, plant relationships and development.

PlSc **104 Plant Sciences Laboratory** (2 cr). Greenhouse operation, plant culture and propagation; crop identification, uses, distribution, and growth responses to environmental variables and growth regulators. Two 2-hr labs per wk.

PlSc **201 Turfgrass Science and Culture** (2 cr). Adaptation, characteristics, and utilization of turf grasses; management principles and physiological bases for the establishment and maintenance of turf. Field trips required.

PlSc **204 Propagation and Culture of Ornamental Plants** (3 cr). Propagation, culture, classification, and uses of plants to enhance man's environment; emphasis on application. Two lec and one 3-hr lab per wk.

PlSc **299** (s) **Directed Study** (1-2 cr, max arr). Prereq: perm.

PlSc **303 Principles of Plant Pathology** (3 cr). Symptoms, causes, and control of plant diseases.

PlSc **308 Forage Crops** (3 cr). Production, management, and utilization of annual and perennial forage plants for pasture, hay, silage, and soil and water conservation. Two lec and one 2-hr lab per wk.

PlSc **338 Weed Control** (3 cr). Biological, chemical, and cultural control of weeds. Two lec and one 2-hr lab per wk.

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). Principles of crop management and their relationship to physiology of vegetative and reproductive growth of crop plants. Prereq: Bot. 311.

PlSc **402 Undergraduate Research** (1-2 cr, max 2). Prereq: perm.

PlSc **404 Plant Disease Identification and Control** (3 cr). Experiments in phytopathology; recognition of symptoms, isolation and identification of pathogenic agents, host-pathogen interactions, and methods of control. Two lec and one 3-hr lab per wk. Prereq: 303 or equiv.

PlSc **405 Biology of Weeds** (3 cr). Alt/yrs 77-78. Classification, identification, and distribution of weeds; morphology, anatomy, physiology, and ecology. One lec and two 2-hr labs per wk; one 1-day field trip.

PlSc **406** (s) **Special Topics** (cr arr).

PlSc **407 Field Crop Production** (3 cr). Major field crops in Idaho and the Pacific Northwest; problems involved in present day production, utilization, processing, and marketing. One 1-day field trip.

PlSc **438 Pesticides in the Environment** (2 cr). See Ent 438.

PlSc **446 Plant Breeding** (3 cr). Alt/yrs 76-77. Same as Genet 446. Application of genetic principles to the improvement of crop plants. Two lec and one 2-hr lab per wk.

PlSc **461 Pomology** (3 cr). Alt/yrs 76-77. Production and management of tree fruit, physiology of the trees and stored fruit. One 2-day field trip.

PlSc **463 Olericulture** (3 cr). Alt/yrs 77-78. Principles of commercial and home garden vegetable production; culture, marketing, storage, and utilization of vegetables. One 2-day field trip. Prereq: 102 or equiv.

PlSc **464 Ornamental Plants and Their Management** (3 cr). Use and culture of plants to enhance man's environment. Two lec and two 2-hr labs per wk. Prereq: 204 or perm.

PlSc **ID469 Vegetable Seed Crop Production** (1 cr). Production of major vegetable seed crops indigenous to the northwest; seedhouse operations and seed regulatory aspects. Two ½-day field trips. Prereq: perm.

PlSc **480 Field Trip** (1 cr). Five-day field trip to production areas. Prereq: perm.

PlSc **499** (s) **Directed Study** (1-2 cr, max 2). 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 **507 Preparation and Presentation of Scientific Material** (1 cr). Preparation and integration of key elements in an illustrated oral presentation; learning-experience situations with equipment and people.

PlSc **ID508 Ecology of Soil-Borne Plant Pathogenic Organisms** (3 cr). Effects of climate, crop management, and microbial associations on the prevalence and pathogenic activity of soil-borne plant pathogenic organisms.

PlSc **ID&WS511 Viruses and Virus Diseases of Plants** (3 cr) (512). WSU Pl P 511. Nature of plant viruses, vector-virus relationships, and virus diseases of plants. Prereq: perm.

PlSc **517 Tree Physiology** (3 cr). Alt/Yrs 77-78. Physiology of woody perennial plants of economic importance. Prereq: Bot 311.

PlSc **518 Plant Stress Physiology** (2 cr). Alt/yrs 76-77. Physiological responses of plants to temperatures, water, radiation, and other environmental stresses.

PlSc **519 Physiology of Flowering** (2 cr). Alt/yrs 77-78. Vernalization, induction, photoperiodism, and biochemistry of flowering.

PlSc **520 Advanced Crop Production** (1-3 cr, max 6) Specialized training in selected phases of crop production and management.

PlSc **530** (s) **Research Methods** (2 cr, max 4). Normally offered in plant pathology, horticulture, plant breeding, and weed control. Individual and group training and experience.

PlSc **532 Advanced Weed Studies** (1-3 cr, max 6). Specialized training in selected phases.

PlSc **WS535 Physiology and Genetics of Parasitism** (3 cr). Alt/yrs 77-78. WSU Pl P 535. Genetic and physiologic aspects of host-parasite interactions. Prereq: perm.

PlSc **WS536 Physiology and Genetics of Parasitism Lab** (2 cr).

Alt/yrs 77-78. WSU PI P 536. Laboratory exercises on genetic and physiologic aspects of host-parasite interactions. Prereq: perm.

PlSc **538 Properties and Functions of Herbicides** (2 cr) (536). Physical and chemical properties and mode of action of herbicides, and their effect on plant structure, internal mechanisms, processes, and sites of action. Prereq: 338 or perm.

PlSc **ID540 Seed Pathology** (3 cr). Alt/yrs 77-78. Analysis of seedborne pathogens including fungi, bacteria, and viruses as they influence disease spread.

PlSc **597** (s) **Practicum** (cr arr). Prereq: perm.

PlSc **598** (s) **Internship** (cr arr). Prereq: perm.

PlSc **599** (s) **Research** (cr arr). Prereq: perm.

PlSc **600 Doctoral Research and Dissertation** (cr arr).

Political Science

H. Sydney Duncombe, Chairman, Dept. of Political Science and Public Affairs Research (207 Admin. Bldg.). Faculty: Robert H. Blank, Bernard C. Borning, H. Sydney Duncombe, Florence A. Heffron, P. Scott Higginbottom, Alwyn R. Rouyer, Roger F. Snider, Amos Yoder.

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. Ordinarily PolSc 105 or six cr in other lower-division courses in political science are required for registration in upper-division courses; exceptions by permission.

PolSc **101 American Government** (3 cr). Political processes and major political institutions in U.S. government, including basic constitutional concepts; includes basic models for analysis of democracy and policy-making. Also offered by correspondence study.

PolSc **C102 American Government** (3 cr). Policy issues and functions.

PolSc **105 Introduction to Political Science** (3 cr). Principles of political science and nature of the discipline, comparative processes in political systems, ideas and theories of politics, problems of governments and international politics.

PolSc **152 Politics and Pollution** (1 cr). Political, governmental, and administrative aspects of overcoming air, water, and other types of pollution of our environment. Also offered by correspondence study.

PolSc **153 Politics and Peace** (1 cr). Political and governmental aspects of U.S. foreign policy and the search for peaceful solutions to world issues.

PolSc **154 Politics and the Economy** (1 cr). Political aspects of governmental policies in the fields of business, labor, and agriculture.

PolSc **155 Politics and Contemporary Issues** (1 cr, max 3). Consult the departmental office for course topic currently offered.

PolSc **200** (s) **Seminar** (cr arr). Prereq: perm.

PolSc **203** (s) **Workshop** (cr arr). Prereq: perm.

PolSc **204** (s) **Special Topics** (cr arr).

PolSc **233 Canadian Political System** (3 cr). General examination of Canadian constitutional principles, federalism, government structure, political process, and electoral behavior.

PolSc **237 International Politics** (3 cr). Survey of major issues and approaches to international politics by major powers; evaluation of theories and principles such as power politics, internationalism, and communism; intro to other courses in the area.

PolSc **275 American State Government** (3 cr). State politics, parties, interest groups, constitutions, legislative, executive, and judicial branches, federal-state relations; key issues of state politics—taxation, education, water, and welfare. Also offered by correspondence study.

PolSc **276 American Local Government** (3 cr). Organization and problems of cities, counties, school districts, and other local units, community power, key functions and issues in local government-planning, urban renewal, race relations, poverty, and transportation.

PolSc **285 Political Systems of Western Europe** (3 cr). Basic elements of the British system and others, including responsible ministry, executive-legislative dynamics, recent political development.

PolSc **286 Communist Political Systems** (3 cr). Basic elements of the Soviet system and others, including nature and role of the party, operations of government, status of the individual, recent political developments.

PolSc **299** (s) **Directed Study** (cr arr). Prereq: perm.

PolSc **341 World Politics and the Arms Race** (3 cr). Evaluation of the problem of war; arms limitation attempts of this century, including the Strategic Arms Limitation Talks (SALT), the Nuclear Nonproliferation Treaty, and recent international agreements.

PolSc **C353 Local Government Procedures Simplification and Forms Design** (1 cr). Procedures simplification, forms design, office layout, and related management techniques for local government officials.

PolSc **C354 City Government Budgeting** (1 cr). Budgeting procedures and techniques useful for city government officials in Idaho; laws governing city budgeting in Idaho.

PolSc **C355 Local Improvement District Administration** (1 cr). Establishment, financing, and administration of local improvement districts in Idaho.

PolSc **C356 Local Government Purchasing** (1 cr). Purchasing procedures and techniques useful for local government officials in Idaho; law governing Idaho purchasing.

PolSc **C376 Community Politics** (3 cr). Strategy and tactics of community political leaders and groups, power relationships in communities, and community issues such as planning and zoning.

PolSc **385 African Political Systems** (3 cr). Same as AfrAm 385. Origins, structure, and working of selected African political systems; problems of development and stability.

PolSc **400** (s) **Seminar** (cr arr). Prereq: perm.

PolSc **403** (s) **Workshop** (cr arr). Prereq: perm.

PolSc **404** (s) **Special Topics** (cr arr).

PolSc **425 Western Political Thought** (3 cr). Analysis of basic concepts and themes from Plato to the early modern period, with special attention to related contemporary political issues and controversies.

PolSc **426 Recent Politicial Thought** (3 cr). Major contemporary ideologies and currents of thought; their origins, interplay, and impact in domestic and world politics.

PolSc **428 American Political Thought** (3 cr). The clash of political ideas throughout our history; analysis of evolving concepts and dissent of various eras including the dominant issues of the present.

PolSc **430 Political Participant Internship** (1-9 cr, max 9). Directed student internship as a participant-observer in the political process, work during a political campaign with a political candidate, party, or interest group. Prereq: perm.

PolSc **431 Political Parties** (3 cr). Public opinion and the political process, party machines, spoils system, nominating methods, conduct of elections.

PolSc **432 The Legislative Process** (3 cr). Theories of representation, recruitment of legislators, legislative organization and behavior, structures of power, relationship to the executive, lobbying, and role in the political system.

PolSc **433 Public Opinion and Electoral Behavior** (3 cr). Review of psychological and sociological concepts in the opinion-formation process, opinion measurement and basic techniques of survey research, and examination of linkages between public opinion and policy in a democratic society.

PolSc **435 Political Research Methods and Approaches** (3 cr). Development of research designs; methods of data collection; measurement of political phenomena; data analysis and the use of statistics in science; data processing techniques.

PolSc **436 Political Participation** (1 cr). Planning a political career, understanding the political environment of your constituency, identification of issues, campaign organization and techniques, responsibilities and political opportunities in elective office. Prereq: 12 cr in political science and perm.

PolSc **437 American Presidency** (3 cr). Roles, power, and functions of the presidency; its relationships with other structures and institutions in the American political system.

PolSc **438 Conduct of American Foreign Policy** (3 cr). Process of making foreign policy, including roles of the Department of State and its missions, the President, the National Security Council, Congress, and the military, as well as their interaction with public opinion and interest groups.

PolSc **439 Public Policy** (3 cr). Processes by which domestic policies are formulated and administered; analysis of the impact of these policies on society in terms of both intended and unintended consequences.

PolSc **440 International Organization and International Law** (3 cr). The League of Nations, the United Nations family, and the role of international law in international relations; the UN's contribution to international security and economic and social development emphasized.

PolSc **443 Foreign Policies of Asian Governments** (3 cr). Foreign politics of Asian governments; evaluation of security, international and development problems, with stress on the wars and economic problems of the Far East.

PolSc **447 Political Systems of East Asian Governments** (3 cr). Political systems of East Asian governments; study of Chinese governments and governments of Southeast Asia.

PolSc **451 Public Administration** (3 cr). Environment of public administration, politics of organization, public decision-making, public relations, leadership, personnel administration, financial administration, administrative morality, and related topics. Also offered by correspondence study.

PolSc **452 Administrative Law and Regulation** (3 cr). Rulemaking, adjudication, and other modes of regulation as practiced by administrative agencies; judicial review and Congressional oversight of administrative acts.

PolSc **453 Public Management Techniques** (3 cr). Staff techniques important to persons entering many types of administrative work in government and other agencies, personnel, management, surveys, data processing, budgeting, purchasing, and public relations.

PolSc **454 Administrative Organization and Behavior** (3 cr). Characteristics of individual decision-making, behavior of small work groups and organization theory, leadership in administration.

PolSc **457 Staff Management Techniques in State Government** (4 cr). Primarily for students planning to enter state government administration. Personnel, budgeting, management, surveys, data processing, purchasing, and public relations.

PolSc **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; supervised work in management practices; students are placed in positions commensurate with their abilities and interests. One cr will be given for each week of internship work. Prereq: perm.

PolSc **459 Legislative Internship** (1-9 cr, max 9). Directed internship in a national, state, municipal, or corporate legislative body. Supervised work experience. Report required. Prereq: perm.

PolSc **C461 Local Government and Intergovernmental Relations in Idaho** (3 cr). Organization, functions, financing, and intergovernmental relations of city, county, and other units of local government in Idaho; emphasis on information of value to planning commission members and other local government officials.

PolSc **467 Constitutional Law** (3 cr). The Supreme Court as a constitutional policy-maker; constitutional principles concerning judicial review, federalism, implied powers, due process, equal protection, civil rights, and civil liberties.

PolSc **469 The Judicial Process** (3 cr). Judicial and legal processes in American government and politics; court structure, procedures, and the administration of justice; judicial behavior and decision-making, selection of judges; sociopolitical theories of law.

PolSc **483 Modernization and Political Change** (3 cr). Analysis of the general process of modernization and of political change as a factor of that process, theories of political development, problems of identity, integration, stability, and revolution in Third World countries.

PolSc **484 Political Systems of South Asia** (3 cr). Comparative analysis of the political process in India, Pakistan, Bangladesh, Sri Lanka, and Nepal; historical development and cultural and social influences on politics are considered along with political institutions and political behavior.

PolSc **493-494 Seminar in Urban Studies** (2 cr). See Inter 493-494.

PolSc **496 Proseminar in Political Science** (1 cr). Professional practice and careers in government, politics, law, and other political science fields. Graded on the basis of P or F.

PolSc **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

PolSc **499** (s) **Directed Study** (cr arr). Prereq: perm.

PolSc **500 Master's Research and Thesis** (cr arr).

PolSc **ID501** (s) **Seminar** (cr arr). Areas normally offered include 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.

PolSc **502** (s) **Directed Study** (cr arr). Prereq: perm.

PolSc **503** (s) **Workshop** (cr arr). Prereq: perm.

PolSc **504** (s) **Special Topics** (cr arr).

PolSc **WS520 Water Resources Politics and Policy** (3 cr). Alt/yrs 77-78. Significant controversies and major developments in western water resources policy.

PolSc **531 Seminar in American Political Institutions** (3 cr). History of social and economic bases in the development of American political institutions and government.

PolSc **WS550 Seminar in Parliamentary Governments** (3 cr). Institutions and policy-making process of major parliamentary political systems.

PolSc **ID556 Seminar in Governmental Policy Analysis** (3 cr). Identification and analysis of policy alternatives in government, including supervised experience of preparing policy analysis for use in government agencies; factors affecting policy outcomes in government.

PolSc **WS560 Comparative State Political Systems** (3 cr). Alt/yrs 77-78. Institutions, processes, and functions of American state governments; their responses to modern needs in an evolving federal system.

PolSc **WS565 The Government of Metropolitian Areas** (3 cr). Alt/yrs 76-77. Political processes, roles, institutions, and problems.

PolSc **ID570 Seminar on Political Violence** (3 cr). Examination of preconditions of internal war and revolution, frustration-aggression theory, measurement of political violence using event data, and the role of the military in politics.

PolSc **ID580 Seminar in Administration and Contemporary Issues** (3 cr). See Inter 580.

PolSc **ID584 Seminar in African Politics** (3 cr). (585). Intensive analysis of the political process and political change in selected regions of Africa.

PolSc **WS585 International Politics in the Communist World** (3 cr). Alt/yrs 77-78. Political relations among communist nations.

PolSc **590 Scope and Methods of Political Science** (3 cr). Relation of political science to other disciplines, systems of analysis, scientific methods and traditional approaches, and research strategies appropriate to particular political problems.

PolSc **591 American Government and Politics** (3 cr). Review of significant issues and methodological problems in the field.

PolSc **592 Comparative Government** (3 cr). Review of significant issues and methodological problems in the field.

PolSc **593 International Relations** (3 cr). Review of significant issues and methodological problems in the field.

PolSc **594 Political Thought** (3 cr). Review of significant issues and methodological problems in the field.

PolSc **595 Public Administration** (3 cr). Review of significant issues and methodological problems in the field.

PolSc **WS596 Seminar in Comparative and Development Administration** (3 cr). WSU Pol S 592. Prereq: 451 or 453.

PolSc **597** (s) **Practicum** (cr arr). Prereq: perm.

PolSc **598** (s) **Internship** (cr arr). Prereq: perm.

PolSc **599** (s) **Research** (cr arr). Prereq: perm.

PolSc **600 Doctoral Research and Dissertation** (cr arr).

Psychology

Robert L. Solso, Dept. Chairman (103 Psych. Bldg.). Faculty: James E. Crandall, Robert J. Gregory, Michael D. Harris, Robert E. Lehman, Philip J. Mohan, Victor E. Montgomery, Raymond F. Paloutzian, Robert L. Solso.

PREREQUISITE: Psych 100 is a prerequisite to all other courses in this field. Unless a prerequisite is specifically stated, the prerequisite to all graduate courses is a major in psychology or permission of the department.

Psych **100 Introduction to Psychology** (3 cr). Intro to psychological topics, including sensation and perception, learning and thinking, motivation, personality and adjustment, social processes, psychological testing; emphasis on fundamental principles. Also offered by correspondence study.

Psych **200** (s) **Seminar** (cr arr). Prereq: perm.

Psych **201 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 3-hr lab per wk. Prereq or coreq: 217.

Psych **202 General Experimental Psychology** (4 cr). Primarily for majors and minors. Physiological, learning, social psychology, developmental, and abnormal. Lab exercises and reports accompany each topic. Two lec and two 3-hr labs per wk.

Psych **203** (s) **Workshop** (cr arr). Prereq: perm.

Psych **204** (s) **Special Topics** (cr arr).

Psych **205 Developmental Psychology** (3 cr). Conception to preadolescence; genetics, anatomy, physiology, biological changes during development, learning, socialization, cognition, and personality. Also offered by correspondence study.

Psych **210 Human Sexuality** (2 cr). Intro to the fundamentals of human sexuality with emphasis on current trends and research.

Psych **217 Introduction to Statistics for the Behavioral Sciences** (3 cr). Same as InfSc 217. Descriptive statistics; elementary correlation analysis; sampling theory and statistical inference. Prereq: Math 111-112.

Psych **299** (s) **Directed Study** (cr arr). Prereq: perm.

Psych **302 Theory of Psychological Measurement** (3 cr). Measurement, techniques, and problems of response measurement, reliability and validity, theoretical and practical limits of behavior measurement. Prereq: 217.

Psych **311 Abnormal Psychology** (3 cr). Nature, causes, treatment, and prevention of patterns of emotional disturbances and personality disorganization, including neuroses and psychoses. One or two 1-day field trips. Also offered by correspondence study.

Psych **316 Industrial Psychology** (3 cr). Contributions of experimental, social, counseling, and clinical psychology to the everyday problems of organizations; emphasis on industrial organizations.

Psych **320 Introduction to Social Psychology** (3 cr). Critical examination of major theories, concepts, and research on the social bases of behavior; research strategies and problems, including lab experimentation, field research, attitude measurement, and ethics in research; preference given to current key topics, including theories of social behavior, attitudes, prejudice, aggression, altruism, interpersonal attraction, and behavior in groups. Lec-disc, plus some lab and field study arranged.

Psych **400** (s) **Seminar** (cr arr). Prereq: perm.

Psych **403** (s) **Workshop** (cr arr). Prereq: perm.

Psych **404** (s) **Special Topics** (cr arr).

Psych **409 Cognitive Development** (3 cr). Intellectual development of the child from birth to maturity, mechanisms of intellectual growth, and relationship between language and cognitive development.

Psych **418 Intermediate Statistics for the Behavioral Sciences** (3 cr). Same as InfSc 418. Theory and application of statistical methods in behavior sciences; nonparametric methods, statistical inference, and analysis of variance and covariance. Prereq: 217.

Psych **425 Cognitive Psychology** (3 cr). Survey and analysis of major topics in field with emphasis on contemporary research and theory; related topics in perception memory, information processing, and transformation of information will also be discussed.

Psych **441 Physiological Psychology** (3 cr). Physiological bases of animal and normal human behavior. Prereq: Biol 201-202.

Psych **444 Sensation and Perception** (3 cr). Fundamental processes and variables involved in sensory perceptual, and cognitive experiences of man.

Psych **455 Psychology of Motivation** (3 cr). Biological and social variables influencing the activation, direction, and self-maintenance of behavior. Prereq: 6 cr in psych.

Psych **461 Psychology of Personality** (3 cr). Theories of personality, basic concepts, techniques of measurement, and experimental methods; the normal personality. Also offered by correspondence study. Prereq: one adv course in psych.

Psych **481 Mental Deficiency** (3 cr). Primarily for students planning professional careers in this or closely related area. History, nature, diagnosis, etiologies, clinical types, and management of mentally deficient individuals. One 1-day field trip. Prereq: 205, 311, and perm.

Psych **490 Psychology of Learning** (3 cr). Experimental literature on the nature and conditions of classical and operant conditioning, verbal learning, and cognition. Prereq: 12 cr in psych.

Psych **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

Psych **499** (s) **Directed Study** (cr arr). Prereq: perm.

Psych **500 Master's Research and Thesis** (cr arr).

Psych **501** (s) **Seminar** (cr arr). Prereq: perm.

Psych **502** (s) **Directed Study** (cr arr). Prereq: perm.

Psych **503** (s) **Workshop** (cr arr). Prereq: perm.

Psych **504** (s) **Special Topics** (cr arr).

Psych **511 Psychological Evaluation I** (3 cr). Assessment of the intelligence and personality of the individual; relevant history, concepts, and supervised practice in test administration; interpretation and reports.

Psych **513 Community Psychology** (3 cr). Theory, research, and issues in community psychology, including strategies of intervention for the mental health professional.

Psych **525 Advanced Cognitive Psychology** (3 cr). Analysis of major theories and research in information processing, pattern perception, memory and thought.

Psych **528 Descriptive Psychopathology** (3 cr). Nature and causes of emotional disturbances and personality disorganiza-

tion; contemporary research in experimental psychopathology; systems of diagnosis and classification.

Psych **530 Introduction to Clinical Psychology** (3 cr). Practical, theoretical, research, and professional aspects of clinical psychology; breadth of the area; social-professional issues.

Psych **540 Psychological Evaluation II** (3 cr). Projective techniques with supervised practice in administration, scoring, and interpretation of the three most frequently used devices.

Psych **545 Advanced Clinical Psychology** (3 cr). Theory, research, and techniques of psychotherapy. Prereq: 530; coreq: 597.

Psych **571 Psychological Evaluation** (2-6 cr, max 6). Clinical assessment of the individual; integration of the various measures of behavior, quantitative and qualitative, to provide sensitive, relevant, and insightful descriptions of behavior. Prereq: 511, 530, 540, and perm of dept.

Psych **597** (s) **Practicum** (cr arr). Prereq: perm.

Psych **598** (s) **Internship** (cr arr). Prereq: perm.

Psych **599** (s) **Research** (cr arr). Prereq: perm.

Radio-Television

Don H. Coombs, Director, School of Communication (214 Univ. Classroom Ctr.). Faculty: Cecil W. Bondurant, William A. Byrd, Joyce B. Campbell, Peter A. Haggart (Chairman), Charles F. Houlberg.

RadTV **141 Introduction to Radio-Television Broadcasting** (3 cr). History, organization, operation, and regulation of radio and television stations and networks.

RadTV **200** (s) **Seminar** (cr arr). Prereq: perm.

RadTV **203** (s) **Workshop** (cr arr). Prereq: perm.

RadTV **204** (s) **Special Topics** (cr arr).

RadTV **253 Recording and Broadcasting Techniques** (3 cr). Procedures for audio use and limitations of broadcast equipment; study of control board equipment, consoles, microphones, tape recorders, tape, and techniques of audio equipment.

RadTV **285 Announcing and Radio Production I** (2 cr). Theory and practical application, both lab and on-air, of announcing techniques and radio production; board operation and announcing duties on KUID-FM required; lab work in television announcing. Lec-lab arranged. Prereq: 253 or perm.

RadTV **287 Station Writing** (3 cr). Writing for radio and television; script format, terminology, and commercial writing; all types of writing assignments encountered on local radio and television stations.

RadTV **292 Introduction to Television Production** (3 cr). Basic production tools and theories; studio control equipment, sets, lighting, composition, sound, producing, and directing. Two lec and one lab per wk.

RadTV **ID295 Broadcasting Theory and Practice in Preparation for FCC 3rd-Class Exam** (1 cr). Theory and practice of control board and transmitter operation, with relevant FCC regulations; prepares student to take the exam. Graded on the basis of P or F. Prereq: perm of dept.

RadTV **299** (s) **Directed Study** (cr arr). Prereq: perm.

RadTV **322 Educational Uses of Broadcasting** (2 cr). Instructional broadcasting and its utilization in the classroom; discussion of commercial broadcasting and how it can be applied to classroom use; production of a short TV lesson.

RadTV **388 Cinematography for Television** (3 cr). Basics for 16mm motion picture production and theory as they apply to the television industry; documentary and news film techniques. Two lec and one lab per wk. Prereq: Photo 288 or perm.

RadTV **400** (s) **Seminar** (cr arr). Prereq: perm.

RadTV **403** (s) **Workshop** (cr arr). Prereq: perm.

RadTV **404** (s) **Special Topics** (cr arr).

RadTV **485 Announcing and Radio Production II** (2 cr). Continuation of 285. Prereq: 285 or perm.

RadTV **492 Advanced Television Production** (3 cr). Planning and execution of complete television programs. Two lec and two labs per wk. Prereq: 292 and 388 or perm.

RadTV **493 Broadcast Management** (3 cr). Exploration of management aspects of American radio and television broadcasting.

RadTV **494 Radio-Television News** (3 cr). Techniques of gathering, editing, writing, and producing broadcast news; study and practical application; required on-air news duties on KUID-FM.

RadTV **499** (s) **Directed Study** (cr arr). Prereq: perm.

Recreation

Leon G. Green, Director, Div. of Health, Physical Education, and Recreation (203 Mem. Gym). Faculty: Eric B. Kirkland (Chairman), Calvin W. Lathen.

Rec **200** (s) **Seminar** (cr arr). Prereq: perm.

Rec **203** (s) **Workshop** (cr arr). Prereq: perm.

Rec **204** (s) **Special Topics** (cr arr).

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.

Rec **255 Backpacking and Camping Skills** (2 cr). Lecture, discussion, demonstration, and practical application in backpacking and camping skills. Field trips required. Prereq: 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 weeks of camping. Student contracts with instructor for written work. Prereq: perm.

Rec **258 Survival Skills** (2 cr). Instruction, analysis, and practice of short- and long-term survival skills; developing student awareness of needs and values of survival training.

Rec **260 Man and Leisure** (3 cr). Expanding role of leisure in American life; emphasis on contemporary factors influencing leisure; analysis of leisure values as related to the individual and society.

Rec **261 Recreational Arts and Crafts** (2 cr). Handicrafts suitable for playground. Prereq: perm.

Rec **264 Recreational Music** (1 cr). Musical program in recreational and community centers.

Rec **299** (s) **Directed Study** (cr arr). Prereq: perm.

Rec **329 Leadership in Recreation** (2 cr). Organization, planning, and conduct of school and community, social, recreation, and extracurricular events.

Rec **360 Youth Serving Agencies** (2 cr). Various youth serving agencies, their services, background, organization, and administrative structure. Three days of field trips may be required.

Rec **400** (s) **Seminar** (cr arr). Prereq: perm.

Rec **403** (s) **Workshop** (cr arr). Prereq: perm.

Rec **404** (s) **Special Topics** (cr arr).

Rec **430 Therapeutic Recreation** (3 cr). Theory, background, and rationale of therapeutic recreation; various recreational therapeutic activities and leadership methods. Three days of field trips may be required.

Rec **486 Program Planning for Recreation Centers** (3 cr). Organization, management, programs, and public relations involved in the operation of recreation centers, settlement-housing, military posts, and college student unions.

Rec **494 Administrative Practices in Community Recreation** (3 cr). Planning and development of community recreation programs; leadership, facilities, finances, services, and public relations.

Rec **495 Internship in Recreation** (9 cr). Supervised field work in recreation centers, playgrounds, camps, churches, and other

social agencies; placement in a full-time professional recreation position for a minimum of 9 wks. Graded on the basis of P or F.

Rec **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

Rec **499** (s) **Directed Study** (cr arr). Prereq: perm.

Religious Studies

Stanley W. Thomas, Coordinator (412 Faculty Office Complex East). Faculty: Stanley W. Thomas.

The following nonsectarian courses are offered by two privately sponsored agencies adjacent to the campus: the Idaho School of Religion and the L.D.S. Institute of Religion. While these teaching centers are not part of the university, they secure the university's approval of courses and instructors.

RelSt **104 Biblical History and Thought** (3 cr). Comprehensive study of the salvation history, persons, and theology of the two Testaments to give a total view of the biblical books.

RelSt **106 Essentials of Christianity** (2 cr). Principles of the Christian religion from its foundation until modern times.

RelSt **131 Religion and the Meaning of Existence** (3 cr). Intro to religion in today's world; emphasis upon its social and psychological implications for the individual.

RelSt **133 Religion and Marriage** (2 cr). Religious viewpoints as they relate to dating, courtship, and family life.

RelSt **186 Dynamics of Religious Leadership** (2 cr). Charismatic authority, bureaucratic structure and processes of routinization, and their effect upon religious expression.

RelSt **190** (s) **Great Religious Thinkers** (1 cr, max 4). Life and thought of major contributors to the world's religious traditions, such as Augustine, Calvin, Gandhi, Luther, and Wesley. Consult the time schedule for the special emphasis each semester.

RelSt **200** (s) **Seminar** (cr arr). Prereq: perm of coord.

RelSt **204** (s) **Special Topics** (cr arr).

RelSt **273 World Religions** (2 cr). Main beliefs of Islam, Hinduism, Buddhism, Confucianism, Judaism, and Christianity within the context of the internationalization of culture.

RelSt **282 The New Morality** (2 cr). Development of religious ethics in the West and its bearing upon contemporary expressions.

RelSt **284 Religion and World Problems** (1 cr). Viewpoints concerning such issues as war and peace, population and environment, identity and alienation considered in international perspective.

RelSt **299** (s) **Directed Study** (cr arr). Prereq: perm of coord.

RelSt **321 Contemporary Theological Thought** (2 cr). Recent developments in Christian theology, writings of such men as Teilhard de Chardin, Dietrich Bonhoeffer, and Paul Tillich.

RelSt **322 Religious Institutions** (2 cr). Comparative study of contemporary religious institutions, such as Baptist, Lutheran, and Roman Catholic churches in America; special attention to reform and unity movements.

RelSt **323 Religion and Society** (2 cr). Analysis of the societal manifestation of religion, sociological significance of schisms, "sect" and "church" in sociological theory. Prereq: 131 or perm.

RelSt **400** (s) **Seminar** (cr arr). Prereq: perm of coord.

RelSt **404** (s) **Special Topics** (cr arr).

RelSt **490 Technology and Human Values** (2-3 cr). See Inter 490.

RelSt **499** (s) **Directed Study** (cr arr). Prereq: perm of coord.

Social Science

Harry H. Caldwell, Coordinator (111 Mines Bldg.). Faculty: Richard W. Beeson, Harry H. Caldwell, Max E. Fletcher, Philip J. Mohan, Alwyn R. Rouyer, Fred H. Winkler.

PREREQUISITE: Enrollment in courses in this subject field, except 101, 103, 185, and 385, requires the permission of the coordinator.

SocSc **101 Man in a Nuclear Age** (2 cr). See Inter 101.

SocSc **103 Introduction to Black Culture** (2 cr). Same as AfrAm 103. Black contributions, particularly to American society; emphasis on the concept of identity and the problems of alienation treated in both historic and contemporary perspectives. See related courses in anthropology, English, history, and music.

SocSc **185; 385 Study Tour Abroad** (1-9 cr, max 9). Participation in a tour conducted by a member of the University of Idaho faculty providing direct observation of the political, economic, and social life of one or more foreign countries. Students pay own expense. Max one cr per wk. Prereq for 185: grad from high school; prereq for 385: jr standing or perm of coord.

SocSc **200; 400; 501** (s) **Seminar** (cr arr).

SocSc **203; 403; 503** (s) **Workshop** (cr arr).

SocSc **204; 404; 504** (s) **Special Topics** (cr arr).

SocSc **299; 499; 502** (s) **Directed Study** (cr arr).

SocSc **498; 598** (s) **Internship** (cr arr).

SocSc **597** (s) **Practicum** (cr arr).

SocSc **599** (s) **Research** (cr arr).

Sociology

Roderick Sprague, Head, Dept. of Sociology/Anthropology (101 Faculty Office Complex West). Faculty: Richard W. Beeson, Richard E. Bradfield, John E. Carlson, Zaye Chapin (Social Work), Marie L. Lassey, Ronnal L. Lee.

PREREQUISITE: Ordinarily three cr in lower-division courses in sociology are required for registration in upper-division courses in this field; exceptions by permission.

Soc **110 Introduction to Sociology** (3 cr). Basic concepts, principles, processes, including socialization, primary groups, race relations, the family, religion, and population. Also offered by correspondence study.

Soc **200** (s) **Seminar** (cr arr). Prereq: perm.

Soc **203** (s) **Workshop** (cr arr). Prereq: perm.

Soc **204** (s) **Special Topics** (cr arr).

Soc **230 Social Problems** (3 cr). Concepts relating technological and institutional changes to current social problems. Also offered by correspondence study.

Soc **240 Introduction to Social Welfare** (3 cr). Analysis of the forces which have led to current social welfare practices. At least one field trip. Prereq: 110 or 230.

Soc **241 Contemporary Social Welfare Organization** (3 cr). Public and private social welfare agency services and programs. Two field trips. Prereq: 240.

Soc **299** (s) **Directed Study** (cr arr). Prereq: perm.

Soc **310 Rural Sociology** (3 cr). Rural-urban relationships, role of agricultural class in industrial society, number, origin, distribution, and composition of rural population. Two 1-day field trips. Also offered by correspondence study.

Soc **311 Urban Sociology** (3 cr). Population, spatial, social patterns characteristic of modern urban communities. One 1-day field trip.

Soc **312 Sociology of Organizations** (3 cr). Analysis of positions, roles, norms, and authority structures in traditional, formal, complex, and bureaucratic organizations.

Soc **313 Collective Behavior** (3 cr). Theoretical analysis of group

behavior which emerges spontaneously in response to critical and unstructured situations; includes mob behavior, panic, crazes, fads, dynamics of group problem solving, mass movements, and the influence of the news media.

Soc **314 Social Statistics** (3 cr). Descriptive and inferential statistics; measures of association, central tendency, and dispersion; probability theory; parametric and nonparametric tests as applied to sociology and anthropology. Prereq: Math 111 or equiv.

Soc **320 Marriage and the Family** (3 cr). Historical and economic background of the family and marriage institution today from a cross-cultural perspective; conditions affecting the family and marriage in America. Also offered by correspondence study.

Soc **321 The Community** (3 cr). Origins, types, structural and functional patterns, and processes of the community. Two 1-day field trips. Also offered by correspondence study.

Soc **322 Racial and Ethnic Relations** (3 cr). See Anthr 322.

Soc **330 Juvenile Delinquency** (3 cr). Extent, causes, and control of juvenile delinquent behavior. Also offered by correspondence study.

Soc **331 Criminology** (3 cr). Behavior systems and deviant patterns; modern penal institutions and methods; crime prevention. One 1-day field trip.

Soc **400** (s) **Seminar** (cr arr). Prereq: perm.

Soc **403** (s) **Workshop** (cr arr). Prereq: perm.

Soc **404** (s) **Special Topics** (cr arr).

Soc **409 Field Methods in Sociology and Social Work** (1-8 cr, max 8). Supervised field training in sociological research and/or social work field methods. Prereq: perm.

Soc **410 Introduction to Social Research** (3 cr). Principal methods of data collection, analysis, and interpretation. Prereq: Psych 217 or comparable introductory statistics.

Soc **412 Social Structure and Personality** (3 cr). Development of identity and self concepts from social interaction; general inquiry into how perception, learning, thinking, motivation, and attitude formation reciprocally relate to the social structure.

Soc **413 Early Social Theory** (3 cr). Survey of social thought from Hammurabi (200 B.C.) to Durkheim (A.D. 1900).

Soc **414 Modern Social Theory** (3 cr). Brief survey of social thought from Durkheim (A.D. 1900) to the present.

Soc **420 Social Stratification** (3 cr). Comparative study of differential status patterns, including origins, forms, functions, and trends.

Soc **421 Population and Human Ecology** (3 cr). Theories and methods of population analysis, migration patterns, and the implications of overpopulation for world resources.

Soc **431 Problems of Aging People** (2-3 cr). Social, psychological, and physical problems related to enforced leisure and the aging process. Includes 24 hrs of field work with aging when taken for 3 cr. May be concurrent with 409 with perm.

Soc **440 Methods of Social Work** (3 cr). Characteristics of the profession of social work; basic knowledge and skills for interviewing and working with individuals, families, and groups. Prereq: 240 or perm.

Soc **493-494 Seminar in Urban Studies** (2 cr). See Inter 493-494.

Soc **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm of dept.

Soc **499** (s) **Directed Study** (cr arr). Prereq: perm.

Soc **500 Master's Research and Thesis** (cr arr).

Soc **501** (s) **Seminar** (cr arr). Subjects normally offered are methods of sociological research, contemporary social problems, and social theory. Prereq: perm.

Soc **502** (s) **Directed Study** (cr arr). Subjects normally offered are sociological theory, demography and human ecology, and race relations. Prereq: perm.

Soc **503** (s) **Workshop** (cr arr). Prereq: perm.

Soc **504** (s) **Special Topics** (cr arr).

Soc **597** (s) **Practicum** (cr arr). Prereq: perm.

Soc **598** (s) **Internship** (cr arr). Prereq: perm.

Soc **599** (s) **Research** (cr arr). Prereq: perm.

Soils

Lucas Calpouzos, Head, Dept. of Plant and Soil Sciences (328 Ag. Sci. Bldg.). Faculty: Maynard A. Fosberg, Roger W. Harder, Richard D. Johnson, J. Preston Jones, Glenn C. Lewis, Robert H. McDole, Raymond J. Miller, Denny V. Naylor.

Soils **205 General Soils** (3 cr). Physical, biological, and chemical properties of soils and their relationships to plant growth. Prereq: Chem 111 or equiv; coreq for agriculture students: 206.

Soils **206 General Soils Laboratory** (1 cr). Experiments, demonstrations and audiovisual tutorial instruction of basic soil physical and chemical properties. One 2-hr lab per wk. Coreq: 205.

Soils **344 Soil Conservation and Management** (3 cr). Alt/yrs 76-77. Relationships of soil type, slope, climate, and erosion to land capability; conservation and management practices for erosion control. Two 1-day field trips. Prereq: 205.

Soils **354 Soil Resources and Land Use Planning** (2 cr). Soil surveys, guides and methods in making soil interpretations; use of soils data and interpretations in land use and environmental decisions.

Soils **401 Undergraduate Research** (1-2 cr, max 4). Individual study. Prereq: sr standing and perm.

Soils **404** (s) **Special Topics** (cr arr).

Soils **408 Forest Soils** (2 cr). See FWR 408.

Soils **412 Soil Chemistry** (4 cr). Alt/yrs 76-77. Chemical properties of soil and their measurement, including ion exchange, water quality and salt-affected soils, nutrient fixation reactions, alkaline and acid soils, and instrumental lab techniques. Two lec and two 3-hr labs per wk. Prereq: 205.

Soils **417 Soil Clay Mineralogy** (2 cr). Alt/yrs 76-77. Structure, chemical, and physical properties of clay minerals found in soils. Prereq: Chem 112 or 114.

Soils **425 Soil and Aquatic Microbiology** (3 cr). See Bact 425.

Soils **435 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 per wk. Prereq: 205.

Soils **446 Soil Fertility** (3 cr). Alt/yrs 77-78. Principles of soil fertility maintenance; availability of plant nutrients and their relationship to plant growth and fertilization practices. Prereq: 205.

Soils **448 Mineral Nutrition** (3 cr). Alt/yrs 77-78. See Bot 413.

Soils **454 Soil Development and Classification** (3 cr). Factors influencing soil development and their relationship to soil properties; methods for soil profile descriptions, classification, and interpretations. Two lec and one 2-hr lab per wk; two 1-day or one 2-day field trips. Prereq: 205.

Soils **490 Proseminar** (1 cr, max 2). Prereq: jr standing and perm.

Soils **500 Master's Research and Thesis** (cr arr).

Soils **501** (s) **Seminar** (cr arr). Prereq: perm.

Soils **502** (s) **Directed Study** (cr arr). Prereq: perm.

Soils **ID511 Soil Organic Matter** (2 cr). Alt/yrs 76-77. Formation, chemical properties, and significance of the soil organic fraction. Prereq: 412, Bact 425, and course in organic chemistry, or perm.

Soils **ID&WS512 Advanced Soil Chemistry** (3 cr). Alt/yrs 77-78. WSU 500. Chemical properties of soil colloidal systems. Prereq: 412, Chem 253, or perm.

Soils **WS513 Groundwater Chemistry** (3 cr). Alt/yrs 76-77. WSU

582. Aquifer characteristics; sources of groundwater solutes; chemical changes during groundwater flow; dynamics of solute flow; measurements of groundwater chemistry. Prereq: 512 or perm.

Soils **ID515 Chemistry of Plant Nutrients** (3 cr). Alt/yrs 77-78. Chemistry of plant nutrients in the soil and relationship to uptake and use by plants. Prereq: 412 or perm.

Soils **WS517 Biochemistry of Soil-Water Environment** (3 cr). Alt/yrs 76-77. WSU 507. Biochemical processes in soil-water environment; nutrient cycling; the nitrogen cycle; pesticides in environment; agricultural waste disposal and pollution problems. Prereq: 412, 425, Chem 253, Chem 480, or perm.

Soils **521 Advanced Forest Soils** (3 cr). See FWR 521.

Soils **WS536 Advanced Soil Physics** (2 cr). Alt/yrs 77-78. WSU 511. Physics of the soil-water system. Prereq: 435 or perm.

Soils **ID&WS546 Advanced Soil Fertility** (3 cr). Methods for evaluating nutrient availability and soil fertility. Prereq: 446, ID515, or perm.

Soils **ID555 Advanced Soil Genesis and Classification** (3 cr). Alt/yrs 77-78. Genesis, classification, and interpretation of soils; field course studying soil properties and their interrelationships to climate, vegetation, parent material, topography, time, classification, and land use interpretations. One lec and one 4-hr lab per wk; one 8-day or eight 1-day field trips. Prereq: 454 or perm.

Soils **597** (s) **Practicum** (cr arr). Prereq: perm.

Soils **598** (s) **Internship** (cr arr). Prereq: perm.

Soils **599** (s) **Research** (cr arr). Prereq: perm.

Soils **600 Doctoral Research and Dissertation** (cr arr).

Special Education

Thomas O. Bell, Director, Div. of Teacher Education (301 Educ. Bldg.). Faculty: Linda K. Gibbs, Ferris O. Henson, Arthur U. Iriarte (Chairman), Marguerite M. Lynch, A. Lee Parks.

SpEd **190 Special Education Laboratory** (1 cr, max 6). Supervised observation and participation with exceptional children. Graded on the basis of P or F.

SpEd **200** (s) **Seminar** (cr arr). Prereq: perm.

SpEd **204** (s) **Special Topics** (cr arr).

SpEd **275 Education of Exceptional Children** (3 cr). Intro to the education of the mentally retarded, physically limited, deaf or hard of hearing, blind or partially sighted, socially and emotionally maladjusted, speech defective, and intellectually gifted. Also offered by correspondence study. Coreq: 190.

SpEd **299** (s) **Directed Study** (cr arr). Prereq: perm.

SpEd **377 Curriculum Development for the Exceptional Child I** (3 cr). Organization of special programs in public-school education; development of teaching materials; location and selection of appropriate materials related to the needs of the exceptional child. Competency based.

SpEd **378 Curriculum Development for the Exceptional Child II** (3 cr). Interpretations of diagnostic information and prescriptive planning as it relates to teaching methods and techniques relevant to the social and physical world of the exceptional child. Competency based.

SpEd **400** (s) **Seminar** (cr arr). Prereq: perm.

SpEd **403** (s) **Workshop** (cr arr). Prereq: perm of dept.

SpEd **404** (s) **Special Topics** (cr arr).

SpEd **421 Resources and Services for Exceptional Children** (3 cr). Orientation to the resources and services available and essential to the exceptional child and the child's family; proper referral and use of school resources, rehabilitation, facilities, legal aspects, and other public and private agencies serving exceptional children and their families.

SpEd **423 Social and Emotional Aspects of Exceptionality** (3 cr). Intro to the psychological and social problems encountered by the exceptional child, especially during school years; effects on development and learning process; survey of techniques and procedures for evaluating and understanding some psychological, educational, and social problems of exceptional children.

SpEd **425 Diagnostic Evaluation of the Exceptional Child** (3 cr). Diagnostic procedures for identifying behavioral and educational deficits in children with special learning problems.

SpEd **450 Children with Behavioral Disorders** (3 cr). Contrasting normal and deviant personality development; classical and contemporary description of deviant behavior; relationship of community and family interaction to deviant behavior; functional analysis of behavior.

SpEd **451 Education of Emotionally Disturbed Children** (3 cr). Models of organizing and teaching the emotionally disturbed; techniques of classroom management; techniques of behavior modification.

SpEd **476 Education of Severely Mentally Retarded Children** (3 cr). Organization of special classes in public school programs for severely mentally retarded children; development of teaching materials and techniques; emphasis on community organization and parent education. Prereq: 275 or perm.

SpEd **480 Practicum** (9 cr). Directed teaching in classes for exceptional children. Graded on the basis of P or F. Prereq: perm of dept. (Submit application to director of clinical experiences in teacher education by December 1 of school year prior to enrolling.)

SpEd **487 Language Development and Disorders** (3 cr). Theories of language development; analysis of language disorders in exceptional children; intro to techniques and activities of aiding children with developmental language deficits.

SpEd **497 Teaching Gifted Children** (3 cr). Identification and teaching of gifted children in elementary schools.

SpEd **499** (s) **Directed Study** (cr arr). Prereq: perm.

SpEd **500 Master's Research and Thesis** (cr arr).

SpEd **501** (s) **Seminar** (cr arr). Prereq: perm.

SpEd **502** (s) **Directed Study** (cr arr). Prereq: perm.

SpEd **503** (s) **Workshop** (cr arr). Prereq: perm.

SpEd **522 Diagnostic and Remedial Instruction** (3 cr). Methods and materials; problems of accelerations as well as retardations. Prereq: Ed 430 or teaching experience.

SpEd **540 Behavior Analysis in Applied Settings** (3 cr). Basic principles of behavior analysis; concepts, early applications, and current issues. Two lec and one 2-hr lab per wk.

SpEd **541 Mental Retardation Trends and Issues** (3 cr). Current research; innovative approaches to solutions; development of comprehensive community programs.

SpEd **542 Guidance of Exceptional Children** (3 cr). Personal and social problems of exceptional children and their families; techniques of working with them; working with parent groups.

SpEd **545 Community Service Seminar** (3 cr). Analysis of needed ancillary services; planning for and implementing community services; role of the educator on the interdisciplinary team.

SpEd **546 Assessment of Learning Disorders** (3 cr). Evaluation of techniques of assessment of handicapped children.

SpEd **548 Special Education Curriculum** (3 cr). Problems relating to the programming of handicapped; different curriculum approaches; practice in developing curricula for handicapped children.

SpEd **549 Communication Disorders of Handicapped Children** (3 cr). Analysis of language disorders in handicapped children; identification of sensory deficits; techniques for correction; theory of communictation and its relationship to communication disorders.

SpEd **577 Curriculum Development for the Severely Retarded** (3 cr). Curriculum for severely retarded individuals, e.g., self-help, gross motor cognitive, language and social skills.

SpEd **597** (s) **Practicum** (cr arr). Prereq: perm.

SpEd **598** (s) **Internship** (cr arr). Supervised field experience in an

approrpriate public or private agency. Graded on the basis of P or F. Prereq: perm.

SpEd **599** (s) **Research** (cr arr). Prereq: perm.

SpEd **600 Doctoral Research and Dissertation** (cr arr).

Speech

Don H. Coombs, Director, Schooi of Communication (214 Univ. Classroom Ctr.). Faculty: Tom E. Jenness, Nancy L. Mendoza, Paul L. Miles (Chairman).

Sp **109 Intercollegiate Forensics** (1 cr, max 4). Preparation and intercollegiate competition on the national debate topic and in individual speaking events.

Sp **111 Great Speakers on Great Issues** (2 cr). History and criticism of selected public addresses.

Sp **121 Improving Listening Skills** (1 cr). Listening process: application of theory relating to variables which promote and impede listening.

Sp **131 Fundamentals of Speech** (2 cr). Skills and techniques of effective speaking; preparation, delivery, and listening.

Sp **140 Nonverbal Communication** (1 cr). Study of body language, symbols, and various means of nonverbal communication.

Sp **141 Interpersonal Communication** (2 cr). Theory and skills applicable to one-to-one communication situations.

Sp **151 Voice, Diction, and Oral Interpretation** (2 cr). Use of the voice and body in communicating the intellectual and emotional meaning of literature.

Sp **180 Rhetoric of Political Campaigns** (2 cr). Alt/yrs. Study of speaking and strategies of present-day presidential campaigns.

Sp **181 Rhetoric of Political Campaigns** (2 cr). Alt/yrs. Study of the speaking and strategies of presidential campaigns, excluding those of recent times; such campaigns as Lincoln-Douglas, William Jennings Bryan, Theodore Roosevelt, and Harry Truman.

Sp **191 Rhetoric of the Feminist Movement** (1 cr). Study of women's rights throughout history, focusing on the women who figured prominently in the movement.

Sp **192 Rhetoric of Revolt** (1 cr). Study of revolutionary speakers such as Mao, Lenin, and Castro.

Sp **193 Rhetoric of Agitation** (1 cr). Role of the agitator in American and British society; such speakers as Eugene Debs, Joseph McCarthy, Daniel O'Connell, Stokely Carmichael, and Billy James Hargis.

Sp **194 Rhetoric of Black America** (1 cr). Development of the Black speaker in American history from slavery to "black power"; such speakers as Frederick Douglas, Booker T. Washington, Marcus Garvey, Martin Luther King, Malcolm X, and Bobby Seale.

Sp **200** (s) **Seminar** (cr arr). Prereq: perm.

Sp **203** (s) **Workshop** (cr arr). Prereq: perm.

Sp **204** (s) **Special Topics** (cr arr).

Sp **209 Argumentation** (3 cr). Analysis, reasoning, types of evidence, organization, and refutation in debate.

Sp **231 Informative Speech** (2 cr). Practice in preparation and delivery of various types of informative speeches: technical reports, abstracts, lecture demonstrations, humorous; students choose subjects in special interest area. Prereq: 131 or perm.

Sp **241 Intercultural Communication** (2 cr). Patterns of communication among the various races and nations of the world; emphasis on Chinese, Hindu, Arabic, German, Latin American, French, English, and American Indian cultures in comparison with American.

Sp **262 Parliamentary Law and Procedure** (1 cr). Practice of speech under parliamentary conditions.

Sp **299** (s) **Directed Study** (cr arr). Prereq: perm.

Sp **309 Intercollegiate Forensics** (1 cr, max 4). Advanced training for intercollegiate competition on the national debate topic and individual event.

Sp **321 Interviewing** (3 cr). Principles of interviewing; information gathering, influencing beliefs, and solving mutual problems.

Sp **331 Persuasive Speech** (3 cr). Oral style; psychology of attention and suggestion; other speech problems; preparation and presentation of speeches; emphasis on speech to persuade.

Sp **341 Organizational Communication** (3 cr). Study of theories and supporting research findings dealing with communication processes in large institutions and social systems.

Sp **351 Advanced Oral Interpretation** (3 cr). Advanced study of prose, poetry, and dramatic literature for the purpose of refining skills in communicating emotional and intellectual meaning to an audience.

Sp **362 Communication and the Small Group** (3 cr). Small group interaction: problem solving methods, performing as a group leader or as a group member, self-concept, and small group behavior.

Sp **400** (s) **Seminar** (cr arr). Prereq: perm.

Sp **403** (s) **Workshop** (cr arr). Prereq: perm.

Sp **404** (s) **Special Topics** (cr arr).

Sp **421 Introduction to Rhetorical Theory** (3 cr). Development of modern rhetorical theory; contributions of Aristotle, Cicero, Quintilian, Campbell, Blair, Whately, Adams, and contemporary rhetoricians.

Sp **440 Speech for Teachers** (3 cr). Speech problems that confront the teacher in the classroom; speech pedagogy.

Sp **480 General Semantics** (3 cr). Alt/yrs. Basic relationships between language and the people who create, use, and respond to it.

Sp **499** (s) **Directed Study** (cr arr). Prereq: perm.

Sp **501** (s) **Seminar** (cr arr). Prereq: perm.

Sp **502** (s) **Directed Study** (cr arr). Prereq: perm.

Sp **503** (s) **Workshop** (cr arr). Prereq: perm.

Sp **504** (s) **Special Topics** (cr arr).

Theatre Arts

Edmund M. Chavez, Dept. Head (U-Hut 104). Faculty: Edmund M. Chavez, Carl J. Petrick, Forrest E. Sears, Holger Stave.

ADVANCED PLACEMENT: Courses in this subject field that are vertical in content are: 105-106-272-305-306-407-408.

ThA **101 Introduction to the Theatre** (2 cr). For nonmajors. Theatre history; recent trends in staging techniques and architecture; elements of production design; analysis of selected plays.

ThA **102 Stage Makeup** (1 cr). Principles and practices; practical lab experience. Limited to twenty students. Prereq: perm.

ThA **105-106 Basics of Performance** (2 cr). Work on improvisation; presentation of play scenes. ThA 105: acting techniques in relaxation, observation, imagination, and sense memory. ThA 106: emphasis on stage speech, breathing, projection, resonance, pitch, and articulation; international phonetic alphabet. Prereq: perm.

ThA **108 Introduction to Media** (2 cr). For majors and students concurrently enrolled in other theatre arts courses. Intro to drawing, design, graphics, painting, and other media designed specifically for the theatre arts student; preparation for design and technical classes, promotional graphics, and related areas.

ThA **125 Summer Theatre I** (2-4 cr, max 4). Theatre production, including public presentation of several plays. Max ten cr in 125 or 395 combined. Prereq: perm of dept.

ThA **130 Drama-Television Production I** (1-2 cr, max 2). Rehearsal performance of a drama-television production; aspects of production; taping for presentation. Prereq: perm of dept.

ThA **150 Performance Lab** (1 cr; max arr). Required each semester for majors. Warm-up procedures, skills and techniques in stage movement, and voice production; special departmental events and labs. Two labs per wk.

ThA **163 Technical Production** (3 cr). Drafting methods, set construction, props, sound, painting, and use of tools.

ThA **190 Theatre Practice I** (1 cr, max 4). Open to nonmajors. Practical experience in all aspects of theatre practice.

ThA **200** (s) **Seminar** (cr arr). Prereq: perm.

ThA **203** (s) **Workshop** (cr arr). Prereq: perm.

ThA **204** (s) **Special Topics** (cr arr).

ThA **264 Stage Lighting** (3 cr). Equipment, methods of distributing light, color theory, basic electricity, reflection and absorption, and special effects.

ThA **265 Children's Theatre** (3 cr). Alt/yrs. Selection, preparation, and presentation of theatre for children; story telling; recreational and special occasion programs.

ThA **266 Creative Dramatics** (2 cr). Alt/yrs. Selection, preparation, and presentation of creative dramatics; practical application through working with children on the elementary-school level.

ThA **271 Play Analysis** (3 cr). Critical intro to theatre arts; tragic and comic genres; analysis of contemporary theatre systems; emphasis on modern movements in theatre.

ThA **272 Intermediate Acting** (3 cr). Interpretation of roles; methods in characterization; techniques for developing a character. Prereq: perm.

ThA **299** (s) **Directed Study** (cr arr). Prereq: perm.

ThA **305 Methods in Characterization** (3 cr). Alt/yrs. "Physicalizing" the actor's body and emotions through rehearsal techniques, including animals, paintings, props, and transformation characterization.

ThA **306 Advanced Acting** (3 cr). Alt/yrs. Intense textual and characterization study of a specified play; theory and practice in the major stage dialects. Prereq: perm.

ThA **320 Advanced Stage Lighting** (2 cr). Poetic and realistic functions of stage lighting; design of lighting for several plays. Prereq: 264.

ThA **330 Drama-Television Production II** (1 cr, max 4). Continuation of 130. Prereq: perm of dept.

ThA **362 Costume for the Stage** (2 cr). Alt/yrs. Costume design and construction for theatrical productions; development of period costumes and production problems.

ThA **363 Costume Construction** (3 cr). Alt/yrs. Methods of pattern drafting, fitting, and construction of theatrical costumes. Two lec and one 3-hr lab per wk. Prereq: 362 or perm.

ThA **364 Scene Design and Technical Problems** (3 cr). Methods and techniques of stage design, including perspective, rendering, and styles of design; technical problems of specific productions.

ThA **390 Theatre Practice II** (1 cr, max 4). Open to nonmajors. Continuation of 190. Set construction, costumes, lights, and properties.

ThA **395 Summer Theatre II** (2 cr, max 8). Continuation of 125. Max ten cr in 125 and 395 combined. Prereq: perm of dept.

ThA **400** (s) **Seminar** (cr arr). Prereq: perm.

ThA **403** (s) **Workshop** (cr arr). Prereq: perm.

ThA **404** (s) **Special Topics** (cr arr).

ThA **407-408 Styles of Acting** (3 cr). Alt/yrs. ThA 407: cultural backgrounds, manners, and customs in classic acting styles from the Greeks through Shakespeare. ThA 408: Restoration theatre through 20th-century styles. Prereq: perm.

ThA **420 Production Management** (2 cr). Alt/yrs. Publicity and promotion, business management, box office organization, house management, bids, contracts, and budget problems in theatre organization.

ThA **424 The Modern Theatre** (3 cr). Alt/yrs. History of the movements, personalities, and representative plays from the Duke of Saxe-Meiningen to 1930. Prereq: 467-468.

ThA **425 The Modern Theatre** (3 cr). Alt/yrs. Epic, absurd, and theatre of cruelty to current experimentation. Prereq: 467-468.

ThA **467-468 The Theatre** (3 cr). Survey of European and American theatres, dramatists, and actors.

ThA **471-472 Directing** (3 cr). Organization and techniques involved in directing. ThA 471: preparation of a play from casting to performance. ThA 472: emphasis on staging and interpreting the play; work in composition, picturization, movement, and rhythm. Prereq: perm of dept.

ThA **499** (s) **Directed Study** (cr arr). Prereq: perm.

ThA **500 Master's Research and Thesis** (cr arr).

ThA **501** (s) **Seminar** (cr arr). Prereq: perm.

ThA **502** (s) **Directed Study** (cr arr). Prereq: perm.

ThA **503** (s) **Workshop** (cr arr). Prereq: perm.

ThA **504** (s) **Special Topics** (cr arr).

ThA **505 Summer Theatre III** (2-8 cr, max 8). Theatre production, including public presentation of several plays; emphasis on the responsibilities of the graduate student, including assisting the director, serving as crewhead, and acting. Prereq: 20 cr in theatre arts and perm of dept.

ThA **ID510 Costume Design and Rendering Techniques** (2 cr). Emphasis on developing rendering techniques applicable to costume design. Prereq: 362.

ThA **ID515 Advanced Stage Costuming** (2 cr). Design responsibility for a major production. Prereq: perm of dept.

ThA **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.

ThA **ID522 Directing the Period Play** (3 cr). Interpreting and staging the period play in major dramatic periods; social and cultural view of each period.

ThA **524 The Modern Theatre** (3 cr). History of movements, personalities, and representative plays from the Duke of Saxe-Meiningen to the theatre of cruelty.

ThA **530 Scene Design II** (3 cr). Survey of historical periods and architectural styles and their practical application to design problems. Prereq: 163, 364.

ThA **ID535 Advanced Scene Design** (3 cr). Design responsibility for a major production. Prereq: perm of dept.

ThA **ID560 Seminar in Dramatic Criticism** (3 cr). Analysis of past and present criticism of drama.

ThA **WS567 The Forms of Drama: Tragedy** (3 cr). WSU Spe 567. Development of tragedy from its origins to the present.

ThA **WS568 Seminar in Theatre** (3 cr, max arr). WSU Spe 568. Research in a specific area of theatre.

ThA **WS569-WS570 American Theatre and Drama I-II** (3 cr). WSU Spe 545-546. WS569: American theatre and drama from colonial origins to 1850. WS570: same from 1850 to the present.

ThA **597** (s) **Practicum** (cr arr). Prereq: perm.

ThA **598** (s) **Internship** (cr arr). Prereq: perm.

ThA **599** (s) **Research** (cr arr). Prereq: perm.

Veterinary Science

Floyd W. Frank, Dept. Head (22 Vet. Sci. Bldg.). Faculty: George E. Burrows, C. Seymour Card, Floyd W. Frank, Richard F. Hall, David P. Olson, Harland W. Renshaw, Robert C. Ritter, Erik H. Stauber, Donald G. Waldhalm.

VS **200** (s) **Seminar** (cr arr). Prereq: perm.

VS **203** (s) **Workshop** (cr arr). Prereq: perm.

VS **204** (s) **Special Topics** (cr arr).

VS **299** (s) **Directed Study** (cr arr). Prereq: perm.

VS **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 per wk.

VS **400** (s) **Seminar** (cr arr). Prereq: perm.

VS **403** (s) **Workshop** (cr arr). Prereq: perm.

VS **404** (s) **Special Topics** (cr arr).

VS **446 Diseases of Wild Birds and Mammals** (2 cr). See FWR 446.

VS **452 Diseases and Care of Laboratory Animals** (3 cr). Alt/yrs 76-77. Vertebrate animal species commonly employed as lab animals; diseases, sanitation, environmental control, and general care. Two lec and one 2-hr lab per wk.

VS **474 Animal Disease** (3 cr). Causes, transmission, susceptibility, symptoms, diagnosis, prevention, and control of major infectious disease and parasites of domestic animals. Prereq: 371, Bact 250.

VS **481 Virology** (3 cr). Same as Bact 481. Emphasis on pathogenesis and host-virus relationship. Prereq: Bact 304; prereq or coreq: Bact 409.

VS **483 Virology Laboratory** (1 cr). Same as Bact 483. Familiarization with tissue culture techniques used in virology; infection of cultures with selected viruses; observation and evaluation of infected cultures by different diagnostic techniques. One 3-hr lab per wk. Prereq or coreq: Bact 481 or VS 481.

VS **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

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 **503** (s) **Workshop** (cr arr). Prereq: perm.

VS **504** (s) **Special Topics** (cr arr).

VS **512 Principles of Comparative Pathology** (4 cr). Structural and functional alterations in disease; elementary tumor pathology. Three lec and one 2-hr lab per wk. Prereq: background in anatomy, physiology, and/or histology desirable.

VS **516 Methods of Animal Experimentation** (4 cr). Alt/yrs 77-78. Methods of experimentation, including anesthesia, sedation, surgical technique, euthanasia, germ-free animals, drug administration, physiological measurements, radiation, and electronic monitoring of physiological phenomena. Two lec and two 3-hr labs per wk. Prereq: 371 or Zool 324.

VS **597** (s) **Practicum** (cr arr). Prereq: perm.

VS **598** (s) **Internship** (cr arr). Prereq: perm.

VS **599** (s) **Research** (cr arr). Prereq: perm.

Vocational Teacher Education

James A. Bikkie, Director, Div. of Vocational Teacher Education (210 Educ. Bldg.). Faculty: William R. Biggam (Industrial Education), James A. Bikkie (Vocational Teacher Education), James L. Black (Adult Education), Thomas E. Hipple (Counselor Education), John P. Holup (Distributive Education), Robert M. Kessel (Business Education), Shirley O. Kiehn (Home Economics), Dwight L. Kindschy (Agricultural Education), John A. Lawrence (Agricultural Education), Laura J. Miller (Home Economics), John L. Peterman (Trade and Industrial/Technical Education), Robert V. Tarpchinoff (Distributive Education).

MAJORS: Trade and industrial/technical education, and vocational-technical education majors fulfill their major requirements from the courses listed in this section.

RELATED FIELDS: For other course offerings in vocational teacher education, see agricultural education, business education (office occupations and distributive education), guidance and counseling, and home economics.

VocEd **200** (s) **Seminar** (cr arr). Prereq: perm.

VocEd **203** (s) **Workshop** (cr arr). Prereq: perm.

VocEd **204** (s) **Special Topics** (cr arr).

VocEd **270 Technical Competence I** (1-10 cr, max 10). Cr may be awarded to students who are recommended by the State Department of Vocational Education, in cooperation with the University of Idaho, as qualified to teach in the technical phases of a vocational subject matter. Cr for technical competency will not qualify toward fulfilling sr residency requirements. Grades for successful completion of 270, 370, and 470 will be entered as P (pass). Prereq: 9 cr in residence in vocational teacher education.

VocEd **299** (s) **Directed Study** (cr arr). Prereq: perm.

VocEd **322 Vocational Guidance** (3 cr). See Guid 322.

VocEd **351 Principles of Vocational Education** (2 cr). See AgEd 351.

VocEd **370 Technical Competence II** (1-10 cr, max 10). See 270. Prereq: completion of jr yr in vocational teacher education.

VocEd **400** (s) **Seminar** (cr arr). Prereq: perm.

VocEd **403** (s) **Workshop** (cr arr). Graded on the basis of P or F. Prereq: perm.

VocEd **404** (s) **Special Topics** (cr arr).

VocEd **420 Evaluation in Vocational Education** (3 cr). See IEd 420.

VocEd **450 Industrial Safety** (3 cr). See IEd 450.

VocEd **451 School Shop Planning and Administration** (3 cr). See IEd 451.

VocEd **461 Occupational and Job Analysis** (3 cr). Methods, techniques, and procedures in analyzing occupations and jobs into their basic elements.

VocEd **462 Vocational Education Curriculum** (3 cr). See IEd 462. Prereq: 461 or perm.

VocEd **470 Technical Competence III** (1-10 cr, max 10). See 270. Prereq: enrollment in the final semester of the degree program in vocational teacher education.

VocEd **472 Vocational Education Methods** (3 cr). See IEd 472.

VocEd **480 Advanced Technical Competency** (1-6 cr, max 6). 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.

VocEd **481 Foundations of Vocational Education** (2 cr). Business-industry and individual needs as related to the various approaches to vocational education.

VocEd **493 Teaching Distributive Education** (3 cr). See BusEd 493.

VocEd **494 Distributive Education Materials** (2 cr). See BusEd 494.

VocEd **495 Supervising DECA Programs** (2 cr). See BusEd 495.

VocEd **496 Directed Work Experience** (2 cr). See BusEd 496.

VocEd **497 Coordination Techniques** (3 cr). See BusEd 497.

VocEd **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under the general supervision of a faculty member. Graded on the basis of P or F. Prereq: perm.

VocEd **499** (s) **Directed Study** (cr arr). Prereq: perm.

VocEd **500 Master's Research and Thesis** (cr arr).

VocEd **501** (s) **Seminar** (cr arr). Prereq: perm.

VocEd **502** (s) **Directed Study** (cr arr). Prereq: perm.

VocEd **503** (s) **Workshop** (cr arr). Prereq: perm.

VocEd **504** (s) **Special Topics** (cr arr).

VocEd **513 Organization of Vocational Education** (2 cr). Federal, state, and local organization of the support and conduct of vocational programs.

VocEd **524 Issues in Distributive Education** (3 cr). See BusEd 524.

VocEd **540 Occupational Orientation Programs** (3 cr). Design of programs for occupational orientation and experimentation.

VocEd **570 Development of Vocational Education** (3 cr).

Vocational education programs from ancient apprenticeship to current practices.

VocEd **597** (s) **Practicum** (cr arr). Application of theories and techniques; supervised field experiences in selected settings. Graded on the basis of P or F. Prereq: perm.

VocEd **598** (s) **Internship** (cr arr). Supervised experience in teacher education, administration, supervision, or ancillary services in vocational education. Graded on the basis of P or F. Prereq: perm.

VocEd **599** (s) **Research** (cr arr). Prereq: perm.

Zoology

Head, Dept. of Biological Sciences (115 Life Sci. Bldg.). Faculty: Victor P. Eroschenko, J. Homer Ferguson, O. Clifford Forbes, Donald R. Johnson, Earl J. Larrison, Thomas A. McKean, Rodney A. Mead, Peter L. Meserve, Fred W. Rabe, Arthur W. Rourke, Stewart C. Schell, Richard L. Wallace.

Zool **119 Human Anatomy and Physiology** (5 cr). Three lec and two 2-hr rec-labs per wk.

Zool **323 Comparative Vertebrate Embryology** (4 cr). Organogeny, ovulation, fertilization, cleavages, hormonal control, experimental methods; frog, chick, and pig development. Two lec and two 3-hr labs per wk. Prereq: Biol 202.

Zool **324 Comparative Vertebrate Anatomy** (4 cr). Dissection; general vertebrate anatomy; evolution of organ systems. Two lec and two 3-hr labs per wk. Prereq: Biol 202.

Zool **366 Histological Technique** (2 cr). Methods of fixing, sectioning, staining, and mounting. Two 3-hr labs per wk. Prereq: Biol 202.

Zool **384 Bird Identification** (2 cr). Methods of field and lab identification of birds; emphasis on recognition of orders, families, and species of birds of Idaho and the Pacific Northwest. One 3-hr lec-lab per wk for second 8 wks; six 1-day field trips. Prereq: course in biology.

Zool **411 Comparative Vertebrate Reproduction** (3 cr). Major events in reproductive cycles of vertebrates, using mammals as the basic example and contrasting their reproduction processes with those of fish, amphibians, reptiles, and birds. Three lec per wk. Prereq: Biol 202 and course in zoology.

Zool **412 Comparative Vertebrate Reproduction Laboratory** (2 cr). Lab study of the estrous cycle and pregnancy in the rat and the hormonal control of these phenomena. One 3-hr lab per wk. Prereq or coreq: 411 or Anl 452.

Zool **414 Cell Physiology** (3 cr). Experimental investigations of cells. Prereq: organic chemistry and Biol 201; Biol 202 recommended.

Zool **415 Cell Physiology Laboratory** (2 cr). Current methodology to investigate a variety of functions in several eukaryotic cell types. One 3-hr lab per wk.

Zool **416 Mammalian Physiology** (4 cr). Organs and organ systems of vertebrates; emphasis on mammals. Three lec and one 3-hr lab per wk. Prereq: Biol 202 and organic chemistry.

Zool **417 Endocrine Physiology** (3 cr). See Anl 451.

Zool **427 Vertebrate Histology and Organology** (4 cr). Tissues and minute structure of chief mammalian organs. Two lec and two 3-hr labs per wk. Prereq: 324 or perm.

Zool **436 Limnology** (3 cr). See FWR 415.

Zool **478 Ethology** (2 cr). Intro to the natural behavior of wild animals, emphasizing the descriptive aspects. Two lec per wk; three 1-day field trips. Prereq: upper-div natural history course.

Zool **481 Ichthyology** (4 cr). Same as FWR 411. Taxonomy, anatomy, physiology, distribution, and ecological relationships of fishes. Three lec and one 3-hr lab per wk; two 1-day field trips; field labs. Prereq: Biol 202.

Zool **482 Natural History of Birds** (3 cr). Habits, adaptations, ecology, distribution, classification, field and lab identification, economic values, conservation, and relation to man's culture; birds of Idaho and the Pacific Northwest. Two lec and one 3-hr lab per wk; two 1-day field trips. Prereq: Biol 202 or perm.

Zool **483 Natural History of Mammals** (3 cr). Classification, distribution, ecology, food habits, economic importance, conservation, and relation to man's culture; mammals of Idaho and the Pacific Northwest. Two lec and one 3-hr lab per wk. Prereq: Biol 202 or perm.

Zool **484 Invertebrate Zoology** (5 cr). Freshwater, marine, terrestrial invertebrates; morphology, ecology, and evolution. Three lec and two 3-hr labs per wk; one 5-day field trip. Prereq: Biol 202 or perm.

Zool **487 Protozoology** (3 cr). Classification, morphology, physiology, and ecology of protozoa. Two lec and one 3-hr lab per wk. Prereq: Biol 202.

Zool **488 Parasitology** (3 cr). Animal parasites, emphasis on those of man, identification and preservation of local forms. Two lec and one 3-hr lab per wk. Prereq: Biol 202 or perm.

Zool **489 Herpetology** (3 cr). Evolution, taxonomy, natural history, and biology of amphibians and reptiles. Two lec and one 3-hr lab per wk. Prereq: Biol 202.

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: pern.

Zool **502** (s) **Directed Study** (cr arr). Prereq: perm.

Zool **503** (s) **Workshop** (cr arr). Prereq: perm.

Zool **504 Colloquium** (1 cr, max 2).

Zool **513 Comparative Animal Physiology** (3 cr). Alt/yrs 77-78. Physiology, morphology, evolution, and ecology of various animal groups. Prereq: 415 or 416.

Zool **WS514 Neurophysiology** (3 cr). Alt/yrs 77-78. WSU 562. Structure and function of nervous tissues; organization of nervous systems; variations in nervous systems relating to plasticity of behavior. Prereq: 416.

Zool **WS515 Advanced Vertebrate Physiology** (4 cr). Alt/yrs 77-78. WSU 557. Principles of vertebrate physiology illustrated through contemporary analytical and instrumental procedures. Prereq: 416.

Zool **536 Hydrobiology** (4 cr). Alt/yrs 77-78. Freshwater ecology; water chemistry, primary and secondary production, microinvertebrates, investigation of nearby lotic and lentic environments. Three lec and one 3-hr lab per wk; field labs. Prereq: perm.

Zool **538 Zoogeography** (2 cr). Same as Geog 526. Dynamics and causes of distribution of animals in time and space. Prereq: perm.

Zool **600 Doctoral Research and Dissertation** (cr arr).

Facing page: Student life in 1893.

Agricultural Experiment Station

Raymond J. Miller, Director (51 Iddings Wing, Ag. Sc. Bldg.).

THE IDAHO AGRICULTURAL EXPERIMENT STATION was established in 1892 as a division of the College of Agriculture and has the responsibility to conduct research in all areas of food production and related businesses. The experiment station is the research division of the college and is administratively coordinated with the teaching and extension divisions of the college.

The Agricultural Experiment Station is composed of all departments of the college with the exception of the Department of Agricultural Education. Thus, most of the teaching faculty in the college also have part-time appointments in the experiment station. A few individuals have dual appointments between teaching and extension; selected individuals have a three-way appointment among teaching, research, and extension; several staff members on campus are assigned to full-time research.

The Idaho agricultural research program is statewide. Research activities are conducted with all major agricultural commodities and resources and in all major livestock and crop producing areas. The headquarters for the research program is on the campus of the University of Idaho. In addition, there are seven research and extension centers in strategic agricultural areas around the state where resident research personnel are located.

The Idaho Agricultural Experiment Station shares the responsibility of developing and training future scientists through the graduate fellowship programs. Currently there are approximately one hundred graduate students enrolled in the College of Agriculture of which about one-half hold graduate assistantships. These appointments are for an average of two years, during which time the students conduct research as a part of the graduate training.

Bureau of Educational Research and Service

Everett V. Samuelson, Director (301 Educ. Bldg.).

THE BUREAU OF EDUCATIONAL RESEARCH AND SERVICE was established to conduct research, to facilitate research among 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 bureau. The Upward-Bound Program, designed to help youth from low-income families achieve a college education, is housed in the bureau.

Bureau personnel have cooperated with local school districts and with the Idaho State Department of Education in such things as school district surveys, the development and implementation of programs under federal acts, school district reorganization studies, and certification studies. Research reports or monographs of these and other activities are published through the bureau.

The Bureau of Educational Research and Service is financed in part through cost-reimbursement funds from state and federal sources.

Bureau of Public Affairs Research

H. Sydney Duncombe, Director (207 Admin. Bldg.); Roger F. Snider, Assistant Director.

THE BUREAU OF PUBLIC AFFAIRS RESEARCH functions as an integral part of the Department of Political Science and Public Affairs Research. Since its founding, the bureau has completed many research projects concerned with a broad spectrum of state and local government activities in Idaho, such as city and county government, state legislature, state and local politics, election statistics, and special taxing districts.

In addition to its research function, the bureau provides training services on a large scale. Since 1968, the bureau has conducted statewide seminars for both state and local governmental officials. These include training institutes for elected city officials, elected county officials, city clerks and treasurers, special taxing district officials, state legislators, and state agency fiscal officers. The bureau has conducted a series of workshops for secondary teachers of Idaho state and local government, and has developed a high school text and a supplementary reader on Idaho state and local government and politics. A further function of the bureau is to provide consulting services to state and local agencies. Bureau personnel have assisted personnel of the Idaho Budget Division, the Idaho Fiscal Budget Committee, the Idaho Committee on Accounting and Data Processing, the Idaho Constitutional Revision Commission, and the Idaho Citizens Committee on the State Legislature.

In its training and research activities, the bureau has maintained close cooperative relationships with similar agencies within other institutions of higher learning in the state. The bureau has sponsored a number of training programs in cooperation with the Government Research Institute at Idaho State University, and has also worked closely with the departments of Political Science at Boise State University, the

Facing page: Agricultural technology — the old and the new.

College of Idaho, Ricks College, and Northwest Nazarene College.

Inquiries from public and private sources are continually directed to the bureau. Bureau staff members respond to all inquiries and provide information in response to specific questions when the information is available. The bureau has developed a current library of publications from Idaho and other states which it maintains through reciprocal exchange agreements with other bureaus and state agencies throughout the nation.

Center for Business Development and Research

Richard T. Dailey, Director (338 Admin. Bldg.).

AN INTEGRAL PART of the university, the Center for Business Development and Research takes responsibilities in the general area of business and economics. The center's work is primarily in applied research and extension of immediate interest to the state's business and economy. Some of the work of the center could be classified as professional service aimed at developing the state's resources and providing some of the conditions for engaging the faculty, staff, and students of the university on the state's problems and orienting them to the economic culture.

The center maintains a full-time staff and has a flexibility which can be geared to a variety of projects. When problems submitted to the center result in broad projects requiring various research specialists, they can usually be borrowed from other divisions of the university. The availability of suitable personnel is, of course, one of the principal factors in determining whether specific work will be undertaken. The center is organized on the basis of projects and work underway, rather than by departments. The center also has cooperative working relationships with Boise State University and Idaho State University.

Computer Services

William V. Accola, Director (127 Admin. Bldg.).

COMPUTER SERVICES provides facilities for instructional, research, and computational needs of members of the university community, for federal, state, and other governmental agencies, and for other groups and individuals when this service appears to be in the best interests of the university and the state of Idaho.

The center is equipped with an IBM 370 model 145 with tape, disk, card, and printer, and other subsidiary equipment. It maintains a library of computer programs and provides consulting assistance in programming and in the use of the library and other computer facilities. A key-punch and verification service is also available.

Short courses in computer languages, job control, and related subjects are offered periodically. Formal courses in programming and computer science are offered by the departments of Mathematics, Business, General Engineering, and Electrical Engineering.

Cooperative Extension Service

James L. Graves, Director (54 Iddings Wing, Ag. Sc. Bldg.).

THE COOPERATIVE EXTENSION SERVICE was first financed by the Smith-Lever Act of Congress, approved May 8, 1914, to help people of the United States improve their farms, homes, and communities. The Idaho legislature approved the cooperative extension service concept in 1915. In 1917, additional state legislation brought county commissioner boards into the three-way partnership of financing and cooperation.

The headquarters of the Cooperative Extension Service is at Moscow. District offices are located at Boise, Twin Falls, Pocatello, and Moscow.

Agricultural agents and home economists work in forty-two of Idaho's forty-four counties and on the Fort Hall and Nez Perce Indian Reservations. Area agents and/or specialists, those who work in several adjoining counties with farmers and ranchers who produce specific crops and livestock, are headquartered in Burley, Blackfoot, Idaho Falls, Caldwell, Soda Springs, Twin Falls, Coeur d'Alene, and St. Anthony.

Agents live and work in the areas to which they are assigned by mutual agreement of the university and the counties involved. They are backed by a corps of resource people. They receive training in subject matter from state extension specialists located in Moscow, Boise, Caldwell, and Twin Falls. These specialists, in turn, are kept up to date by research scientists of the College of Agriculture and the U.S. Department of Agriculture.

The primary objective of the Idaho Cooperative Extension Service is to make Idaho a satisfying and desirable state in which to live, work, raise families, and enjoy a high quality of life. To accomplish this objective, the extension service works under the basic philosophy that programs planned with people will achieve greater success than those planned for them.

Educational programs in cooperative extension work are conducted in four broad areas. These are: (1) agriculture and natural resources, (2) community resource development, (3) family living, and (4) 4-H, youth development.

Engineering Experiment Station

Robert R. Furgason, Director (125 Janssen Engr. Bldg.).

THE FUNCTION of the Engineering Experiment Station is to encourage and coordinate the College of Engineering's research and extension programs which 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 no separate research facility or a separate research staff. The College of Engineering requires that any research it undertakes have academic significance. This precludes work which is limited to applying already available knowledge or methods to given problems in previously demonstrated ways. However, a large part of the college's research program deals with developing new knowledge needed to attack Idaho's problems 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 university 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 and technicians. We also endeavor to provide information to the entire population of Idaho which may contribute to the successful solving of societal problems.

Forest, Wildlife and Range Experiment Station

John H. Ehrenreich, Director (202 FWR Bldg.); Ali A. Moslemi, Associate Director; Maurice G. Hornocker, Leader, Cooperative Wildlife Research Unit; Theodore C. Bjornn, Leader, Cooperative Fisheries Unit.

ALL MEMBERS OF THE FACULTY of the College of Forestry, Wildlife and Range Sciences are also on the staff of the experiment station, on joint teaching-research appointments. 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. Most of the graduate students currently enrolled in the college are on assistantships provided through station projects.

The station staff conducts research on a wide variety of problems in the areas of forest management, wood technology, range management, recreation, wildlife, and fisheries. Funds for the station are provided by the university, by several state departments, and by grants from federal and other outside sources. Currently about sixty percent of these funds come from outside sources.

Idaho Bureau of Mines and Geology

Maynard M. Miller, Director (206 Mines Bldg.).

THE IDAHO BUREAU OF MINES AND GEOLOGY functions primarily as a research and service organization in fields pertaining to the mineral industry of the state. Cooperative relations are maintained with federal agencies working in this area, particularly the U.S. Bureau of Mines and the U.S. Geological Survey.

Geological and mineral engineering field studies of a reconnaissance nature as well as those designed to obtain detailed information of particular areas and commodities are conducted throughout the state. Reports are issued incorporating the results of such investigations.

The bureau maintains laboratories in the College of Mines Building where research designed to find better or more economical methods for processing ores and mineral products is conducted.

Idaho Mining Research Bureau

Maynard M. Miller, Director (206 Mines Bldg.).

IN ADDITION TO THE USUAL DEPARTMENTAL research, the Idaho Mining Research Bureau has been established as a department of the College of Mines to conduct applied research. Industry problems requiring special capabilities and interdisciplinary study not usually available in most industrial organizations are referred to this bureau for investigation. The staff provides the dual functions of applied research and of specialized teaching in both undergraduate and graduate courses in the college. Facilities, such as detailed ventilation and environmental laboratories, are provided for special research projects and these later become available for graduate student research and teaching. Funds and projects are derived from government and private sources wishing to promote work on specific problems.

Idaho Water Resources Research Institute

John S. Gladwell, Director (B-40 Janssen Engr. Bldg.); E. F. Trihey, Assistant Director.

IN AN EFFORT to ensure coordinated research and provide leadership to the state, the regents created the Idaho Water Resources Research Institute at the University of Idaho on October 24, 1963. Subsequently, the institute was designated by the Office of Water Resources Research of the U.S. Department of the Interior to stimulate, sponsor, provide for, and supplement research programs in the field of water resources. Since then the institute has served the state by formulating and coordinating research programs intended to assure the state, region, and nation of a water supply sufficient in both quantity and quality.

Water resources planning, development, and management is a composite of many disciplines. Consequently, the Idaho Water Resources Research Institute believes that educational needs are met best not necessarily by "water resources engineers" or "water resources scientists," per se, but by individuals with strong basic education in a traditional academic department tempered by a program of directed study in water resources problems and professional practice. The University of Idaho has developed procedures which encourage existing schools and departments to strengthen their programs in the light of the special needs of water resources. The Idaho Water Resources Research Institute has coordinated master's and doctoral programs in several disciplines and specializations through various participating divisional programs.

Specifically, the objectives of the institute are: (1) to increase, improve, and coordinate the efforts of the various university divisions and departments involved in water resources research; (2) to strengthen and coordinate undergraduate programs and course offerings so that the university can supply well-trained teachers and leaders; and (3) to gather, disseminate, and coordinate ideas and research findings between the university and various federal, state, local, and civic organizations interested in water resources.

Institute of Human Behavior

Boyd A. Martin, Director (108 Admin. Bldg.).

THE MAJOR OBJECTIVES of the Institute of Human Behavior are: to engage in research to gain more knowledge concerning man's behavior, whether economic, political, social, psychological, or physiological, for the purpose of gaining a deeper understanding of violence and war, hoping that the causes of behavior are subject to social control; to disseminate and make available to students by publications, conferences, and courses knowledge that man now possesses, which will enable the student to gain an introduction to, and a deeper understanding of, current problems of violence and war. Both of these objectives are based on the assumption that violence and war represent major threats to the continuation of organized society.

Laboratory of Anthropology

Roderick Sprague, Director (101 Faculty Office Complex West).

THE LABORATORY OF ANTHROPOLOGY, established in 1968, serves as the research arm of the Department of Sociology/Anthropology for investigations in archaeology, ethnology, linguistics, and physical anthropology. The major contractual research has been concentrated in historical archaeology for the National Park Service and burial relocation for several Northwest American Indian tribes. Much of the day-to-day work in the laboratory consists of public service information on archeological sites and artifacts for interested citizens as well as ecological impact statements for industry and government.

The laboratory contains modern and well-equipped facilities for the cleaning, preservation, and analysis of both historic and prehistoric artifacts. The metal artifact cleaning facilities are the largest and best equipped in the United States. The laboratory also provides space and facilities for graduate students, teaching collections, and comparative collections.

The osteological analysis of skeletal populations is a major concentration of the

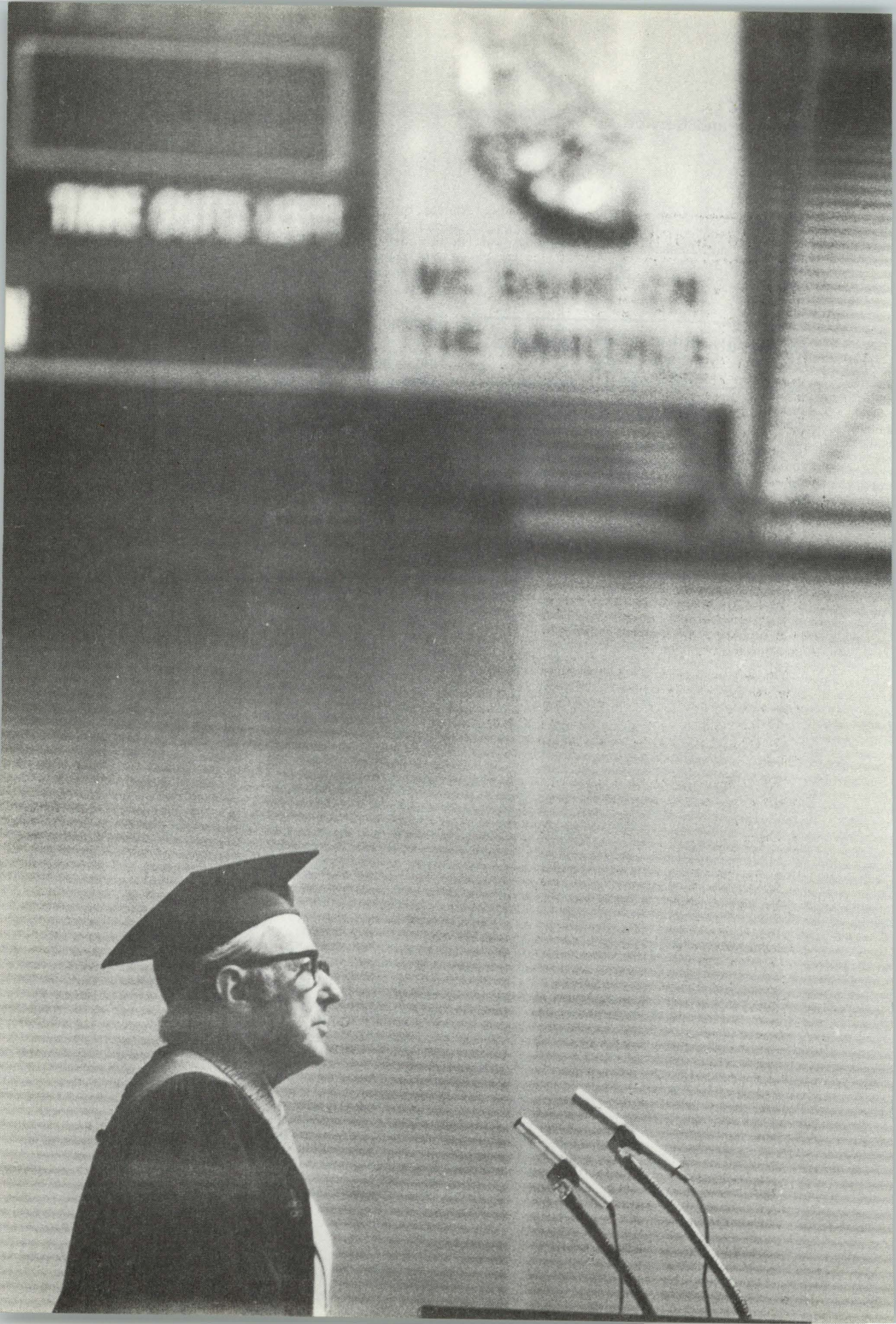
laboratory. As a matter of policy, no American Indian skeletal collections are maintained. Before any such material passes through the laboratory for analysis prior to reburial, the project must have the approval of the tribal authorities concerned.

Research Council and Research Foundation

Ronald W. Stark, Coordinator of Research (111 Morrill Hall); Elizabeth E. Stevenson, Assistant Coordinator of Research.

THE RESEARCH COUNCIL was established to foster research in all legitimate ways, to encourage and assist research workers to coordinate the various research programs being carried on by the university, and to administer certain research funds. The Steering Committee of the Research Council is composed of representative Idaho citizens whose guidance and advice concerning the Short-Term Applied Research (STAR) program assures Idaho of a research program geared closely to the needs of the state.

The Idaho Research Foundation, Inc., is a separate legal entity which implements and administers the provisions of the university copyright and patent policy. Its purpose is to protect the interests of the inventor, the public, and the university, and to handle copyrights, publications, and inventions growing out of individual and/or university research efforts.



Faculties of the University

Ernest W. Hartung, President; Robert W. Coonrod, Academic Vice President; Richard W. Schermerhorn, Chairman of the Faculty Council (1975-76); R. Bruce Bray, Secretary of the University Faculty.

THE UNIVERSITY FACULTY is constituted of the president, vice presidents, deans, professors, associate professors, assistant professors, instructors (including those professors, associate professors, assistant professors, and instructors whose titles have research or visiting designations, e.g., "assistant research professor," and "visiting associate professor," etc.), and such administrative and service officers as the president may designate. *(Constitution of the University Faculty, Article II, Section 1.)*

Members of the Cooperative Extension Faculty, Affiliate Faculty, and emeriti, while not voting members of the University Faculty, belong to the larger constituency known as the General Faculty. They are also included in this list in recognition of their substantial contributions to the university and to the state of Idaho.

Off-campus personnel are identified with an asterisk (*). 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 academic rank shown.

The following list includes the members of the General Faculty as of May 1, 1976.

M. AUDREY AARON, 1971 (1976), Professor of Foreign Languages and Literatures (Spanish); A.B., 1934, Mount St. Scholastica; A.M., 1950, Ph.D., 1952, Johns Hopkins.

ERNEST D. ABLES, 1974, Professor of Wildlife Resources; Associate Dean, College of Forestry, Wildlife and Range Sciences, 1974-; B.S., 1961, Oklahoma State; M.S., 1964, Ph.D., 1967, Wisconsin.

DAVID L. ADAMS, 1971 (1975), Professor and Chairman of Forest Resources; B.S., 1959, Oklahoma State; M.F., 1961, Idaho; Ph.D., 1969, Colorado State.

*DON E. ADAMS, 1975, Affiliate Professor of Chemistry, INEL, Idaho Falls; B.S., 1970, Southeastern State; Ph.D., 1974, Arkansas.

*DONALD E. ADAMS, 1975, Affiliate Clinical Professor of Medical Science, Moscow; B.A., 1949, Wyoming; M.D., 1953, St. Louis.

DOUGLAS Q. ADAMS, 1972 (1976), Associate Professor of English; B.A., 1968, M.A., 1971, Ph.D., 1972, Chicago.

*RICHARD M. ALFORD, 1975, Affiliate Clinical Professor of Medical Science, Lewiston; B.S., 1945, Ursinus; M.D., 1949, Michigan.

*ROBERT C. ALLDAFFER, 1955 (1971), Associate Extension Professor and Caribou County Extension Agricultural Agent, Soda Springs; B.S.Ag., 1950, Idaho.

GERALD M. ALLEN, 1972 (1976), Assistant Professor in Forest Resources; B.S., 1969, M.S., 1971, Humboldt State.

*ALVIN R. ALLER, 1958 (1972), Professor Emeritus of Botany; B.S., 1931, Bethany; M.S., 1932, Kansas State; Ph.D., 1949, Oregon State. Emeritus since 1972 (now residing in Moscow, Idaho).

*FLORENCE D. ALLER, 1962 (1971), Professor of Home Economics and Department Head Emerita (Head, Department of Home Economics, 1971-1974); A.B., 1930, Bethany-Peniel; M.S., 1947, Oregon State; Ed.D., 1962, Idaho. Emerita since 1974 (now residing in Moscow, Idaho).

HENRY M. ALLEY, 1975, Visiting Assistant Professor of English; B.A., 1967, Stanford; M.F.A., 1969, Ph.D., 1971, Cornell.

*SHARON E. ALLRED, 1970 (1974), Assistant Extension Professor and Jerome County Extension Home Economist, Jerome; B.A., 1970, Idaho State.

JEANETTE ALLYN, 1974, Affiliate Professor of Dance, Moscow; B.A., 1965, San Francisco State.

DON A. AMOS, 1963, Business Manager, 1974-; B.S.Bus., 1952, Idaho.

DOYLE E. ANDEREGG, 1967, Professor of Biology (Head, Department of Biological Sciences, 1967-1975); B.Sc., 1952, M.Sc., 1957, Ph.D., 1959, Ohio State.

BETTY E. ANDERSON, 1974, Assistant Social Science Librarian with rank of Instructor; B.A., 1964, Texas; M.L.S., 1974, Washington.

CLIFTON E. ANDERSON, 1972, Assistant Professor of Agricultural Information; Assistant Extension Professor; Assistant Agricultural and Extension Editor; B.S., 1947, Wisconsin; M.A., 1956, California (Berkeley).

GUY R. ANDERSON, 1946 (1968), Professor of Bacteriology; Bacteriologist; Adviser, Pre-Medical Studies; Director, WAMI Medical Program; B.S.Ag., 1942, M.S.Ag., 1947, Idaho; Ph.D., 1956, Washington State.

*JOANNE K. ANDERSON, 1968 (1973), Assistant Extension Professor and Latah County Extension Home Economist, Moscow; B.S.Ed., 1968, Idaho.

*LYNNE A. ANDERSON, 1972, Affiliate Professor of Business, INEL, Idaho Falls; B.A., 1965, M.B.A., 1968, Utah State.

*MOSELLE ANDERSON, 1967 (1974), Associate Extension Professor and Extension Home Economist for the Fort Hall Indian Reservation, Fort Hall; B.S., 1967, Idaho State.

*NEWTON R. ANDERSON, 1967, Affiliate Professor of Mechanical Engineering, INEL, Idaho Falls; B.S., 1958, M.S., 1965, Kansas State.

RUTH ANDERSON, 1946 (1970), Professor Emerita of Office Administration; B.A., 1926, M.S.Ed., 1941, Idaho. Emerita since 1970 (now residing in Moscow, Idaho).

*ALLAN S. ANDREW, 1975, Assistant Extension Professor and District Extension 4-H Specialist, Twin Falls; B.S., 1970, M.S., 1975, Utah State.

AHMED A. ARAJI, 1968 (1972), Associate Professor of Agricultural Economics (Production Economics); Associate Agricultural Economist; B.S., 1962, M.Sc., 1964, Nebraska; Ph.D., 1968, Missouri.

ELDON D. ARCHAMBAULT, 1971, Professor of Education; B.A., 1945, Northern Iowa; M.A., 1948, Ph.D., 1967, Iowa.

*WILLIAM B. ARDREY, 1939 (1945), Professor of Veterinary Science and Veterinary Microbiologist Emeritus; B.S., 1934, Monmouth; M.S., 1936, Ph.D., 1939, Michigan State. Emeritus since 1974 (now residing in Bandon, Oregon).

*JAMES G. ARENDTS, 1970, Affiliate Professor of Civil Engineering, INEL, Idaho Falls; B.S., 1966, M.S., 1968, Ph.D., 1969, Iowa State.

G. MICHAEL ARMSTRONG, 1975, Visiting Assistant Professor of English; A.B., 1965, M.S., 1967, Ph.D., 1974, California (Berkeley).

TERRY R. ARMSTRONG, 1969 (1975), Professor of Education; B.S., 1959, Southern Mississippi; M.Nat.Sc., 1963, Ed.D., 1969, Idaho.

*NANCY I. ATKINSON, 1943 (1972), Catalog Librarian Emerita with rank of Professor (Head, Catalog Department, 1943-1972); A.B., 1935, A.B.L.S., 1936, Michigan. Emerita since 1972 (now residing in Moscow, Idaho).

*JEROME M. AUERBACK, 1975, Affiliate Professor of Nuclear Engineering, INEL, Idaho Falls; Sc.B., 1967, Brown; M.S., 1968, Ph.D., 1975, California Institute of Technology.

JORG A. L. AUGUSTIN, 1968, Associate Research Professor of Food Science and Biochemistry; Diplomierter Ingenieur Agronom, Eidgenoessische Technische Hochschule, 1955, Zurich; M.S., 1957, Illinois; Ph.D., 1964, Michigan State.

DICK L. AULD, 1975, Assistant Professor of Plant Sciences; B.S., 1970, M.S., 1974, New Mexico State; Ph.D., 1976, Montana State.

JASPER R. AVERY, 1959 (1962), Assistant Professor of Mechanical Engineering; B.S.M.E., 1957, Idaho.

*JOHN M. AYERS, 1975, Affiliate Clinical Professor of Medical Science, Moscow; B.S., 1940, Idaho; M.D., 1942, Rush (Chicago).

*JAMES W. BAILEY, 1953 (1972), Professor Emeritus of Veterinary Science; B.Ed., 1935, Western Illinois State Teachers College; D.V.M., 1943, Texas A & M. Emeritus since 1972 (now residing in Mesa, Arizona).

EVERETT M. BAILY, 1961 (1974), Professor of Electrical Engineering; B.S.E.E., 1961, M.S.E.E., 1964, Idaho; Ph.D., 1968, Stanford.

*CRAIG R. BAIRD, 1974, Assistant Extension Professor and Area Extension Entomologist, Caldwell; B.S., 1967, M.S., 1967, Utah State; Ph.D., 1973, Washington State.

DENNIS W. BAIRD, 1974, Social Science Librarian with rank of Assistant Professor; B.A., 1966, Hawaii; M.A., 1970, Michigan State; M.L.S., 1970, Michigan.

*THOMAS D. BAIRD, 1975, Affiliate Clinical Professor of Medical Science, Moscow; B.S., 1932, Western Reserve; M.D., 1941, Syracuse.

*BARBARA BELL BAKER, 1976, Extension Instructor and Minidoka County Extension Home Economist, Rupert; B.S., 1972, Wisconsin; M.S., Iowa State.

*G. ORIEN BAKER, 1935 (1946), Professor Emeritus of Soils; B.S., 1923, M.S., 1924, Washington State. Emeritus since 1966 (now residing in Moscow, Idaho).

*WILLIAM H. BAKER, 1948 (1958), Professor Emeritus of Botany (Head, Department of Biological Sciences, 1956-1967); B.S., 1935, M.S., 1942, Ph.D., 1949, Oregon State. Emeritus since 1972 (now residing in Eugene, Oregon).

GIANCARLO BALDINI, 1975, Professor of Physics; Doctor of Physics, 1960, Milan; Libero Docente, 1966, Roma.

DONALD C. BALDRIDGE, 1969 (1974), Associate Professor of History (Latin American History); B.A., 1960, Idaho; Ph.D., 1971, Arizona.

JO ANN BALDRIDGE, 1972 (1974), Associate Registrar; B.A., 1968, Southern State (Arkansas); M.A., 1972, Idaho.

*JON M. BALDWIN, 1969, Affiliate Professor of Chemistry, INEL, Idaho Falls; A.B., 1962, Thomas Moore; Ph.D., 1967, Illinois.

*FRED J. BALKOVETZ, 1968, Affiliate Professor of Mathematics, INEL, Idaho Falls; B.S., 1965, M.S., 1967, Montana State.

JERRY A. BANCROFT, 1973, Assistant Professor of Architecture; B. Arch., 196S, Southern California; M. Arch., 1971, Washington.

DAVID S. BARBER, 1968 (1974), Associate Professor of English; A.B., 1962, Hamilton; M.A., 1963, Ph.D., 1968, Michigan.

*J. WARREN BARBER, 1920 (1955), Extension Professor Emeritus (Extension 4-H Club Agent for Cassia County, 1920-1921; Extension Agricultural Agent for Cassia County, 1921-1927; District Extension Agent, 1927-1939; County Agent Leader, 1940-1950; Extension Study Specialist, 1950-1955); B.S.Ag., M.S.Ag., Idaho. Emeritus since 1955 (now residing in Boise, Idaho).

EROL BARBUT, 1967 (1976), Associate Professor of Mathematics, B.A., 1963, California (Berkeley); M.A., 1965, Ph.D., 1967, California (Riverside).

DOROTHY T. BARNES, 1969 (1972), Assistant Professor of Music (Voice); B.Mus., 1948, M.Mus., 1964, Idaho.

WILLARD BARNES, 1965 (1970), Associate Professor of History (American History); B.S.Ed., 1949, M.S.Ed., 1950, Idaho; Ph.D., 1968, Washington State.

WILLIAM P. BARNES, 1957 (1963), Professor of Mechanical Engineering; Department Chairman, 1974-; B.S.M.E., 1947, Idaho; M.M.E., 1949, Yale; Ph.D., 1973, Illinois; P.E.

*JOHN L. BARNHART, 1934-1935, 1956 (1974), Professor Emeritus of Food Science; B.S., 1930, Pennsylvania State; M.S., 1932, West Virginia; Ph.D., 1940, Pennsylvania State. Emeritus since 1974 (now residing in Moscow, Idaho).

ROBERT M. BARON, 1974, Assistant Professor of Architecture; B.Arch., 1972, Oregon; M.Arch., 1973, Washington.

WILLIAM F. BARR, 1947 (1958), Professor of Entomology; Entomologist; B.S., 1945, M.S., 1947, Ph.D., 1950, California (Berkeley).

JAMES L. BARRUS, 1949 (1967), Assistant Professor of Chemistry; Director, General Chemistry Laboratories; B.S., 1949, Wyoming; M.S., 1956, Idaho.

*CHARLES G. BARTELL, 1950 (1968), Professor Emeritus of Architecture; B.Arch., 1949, Washington; M.S.Arch., 1950, Columbia. Emeritus since 1973 (now residing in Moscow, Idaho).

*V. FOREST BASTON, 1967, Affiliate Professor of Chemistry, INEL, Idaho Falls; B.S., 1960, Ph.D., 1965, Wyoming.

LEROY O. BAUER, 1956 (1961), Professor of Music (Viola, Chamber Music); B.S.Mus.Ed., 1941, Wisconsin (Milwaukee); M.Mus., 1946, Northwestern.

*JOAN M. BAUNE, 1965-1967, 1968 (1971), Assistant Extension Professor and Lewis County Extension Home Economist, Nezperce; B.S.H.Ec., 1965, Idaho.

*MABEL R. BEATTIE, 1925 (1965), Professor Emerita of Foreign Languages (Latin, French); B.A., 1923, Idaho; M.A., 1925, Radcliffe. Emerita since 1967 (now residing in Moscow, Idaho).

MICHAEL L. BEATTY, 1974, Associate Professor of Law; A.B., 1969, California; J.D., 1972, Harvard.

*CLARENCE D. BECHTOLT, 1944 (1965), Extension Professor Emeritus (Extension Agricultural Agent for Canyon County, 1944-1965); B.S.Ag., 1924, Colorado State. Emeritus since 1965 (now residing in Caldwell, Idaho).

*ARLENE E. BECK, 1974, Extension Instructor and Gooding County Extension Home Economist, Gooding; B.S.H.Ec., 1973, Northern Colorado.

RICHARD J. BECK, 1957 (1971), Associate Director of Libraries with rank of Professor; B.A., 1949, St. Thomas; B.S.L.S., 1950, M.A., 1955, Minnesota.

SIDNEY M. BECK, 1951 (1972), Professor of Bacteriology; Bacteriologist; A.B., 1941, M.A., 1948, Brigham Young; Ph.D., 1951, Pennsylvania State.

RICHARD W. BEESON, 1972, Assistant Professor of Sociology; B.A., 1960, M.A., 1962, Ph.D., 1971, New Mexico.

*JOSEPH M. BEESTON, 1961, Affiliate Professor of Metallurgy, INEL, Idaho Falls; B.S., 1949, Ph.D., 1953, Utah.

GEORGE M. BELL, 1949 (1955), Professor of Law; B.S., 1935, Utah State; J.D., 1940, George Washington.

*ROY A. BELL, 1950 (1972), Professor Emeritus of Photography; B.A., 1938, M.A., 1954, Idaho. Emeritus since 1972 (now residing in Moscow, Idaho).

*T. DONALD BELL, 1957, Professor of Animal Science and Department Head Emeritus (Head, Department of Animal Science, 1957-1970); B.S.Ag., 1932, M.S.Ag., 1936, Idaho; Ph.D., 1939, Wisconsin. Emeritus since 1975 (now residing in Moscow, Idaho).

THOMAS O. BELL, 1966-1970, 1971 (1971), Professor of Education; Director, Division of Teacher Education, 1971-; Associate Dean, College of Education, 1974-; B.A., 1953, M.A., 1958, Idaho State; Ed.D., 1966, Utah State

GLADYS I. BELLINGER, 1960, Professor of Home Economics (Child Development); B.S., 1933, Kansas State (Emporia); M.S., 1948, Ph.D., 1950, Cornell.

GEORGE H. BELT, JR., 1965 (1969), Associate Professor of Forestry (Watershed Management); Chairman, Faculty Council, 1972-1973; B.S., 1960, North Carolina State; M.F., 1962, Yale; D.F., 1968, Duke.

*STEVEN J. BENGSTON, 1967, Affiliate Professor of Mathematics, INEL, Idaho Falls; B.S., 1964, M.S., 1966, Oregon.

DAVID H. BENNETT, 1975, Assistant Professor of Fishery Resources; B.S., 1964, M.S., 1968, Connecticut.

*BENSON, CARL A., 1975, Affiliate Professor of History, INEL, Idaho Falls; B.S.Ed., 1964, Cincinnati.

*JOS M. BENTVELZEN, 1974, Affiliate Professor of Chemical Engineering, Seattle, Wa.; B.S., 1964, Academia Minerva (Netherlands); M.S., 1971, Ph.D., 1972, North Carolina State.

*JACK D. BERGGREN, 1971, Affiliate Professor of Business Administration, INEL, Idaho Falls; B.S., 1957, John Brown; M.B.A., 1971, Idaho.

*HERBERT A. BERMAN, 1952 (1957), Professor Emeritus of Law; A.B., 1924, J.D., 1927, Harvard. Emeritus since 1967 (now residing in Moscow, Idaho).

*EUGENE L. BERRY, 1968, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1953, South Dakota; M.S., 1968, Idaho.

*RAY M. BERRY, 1947, Professor Emeritus of Education; A.B., 1917, Illinois College; M.A., 1932, Columbia; Ed.D., 1942, Stanford. Emeritus since 1966 (now residing in Moscow, Idaho).

NEDAVIA BETHLAHMY, 1968, Affiliate Professor of Forest Hydrology, U.S. Forest Service, Moscow; B.S., 1939, Pennsylvania State; M.S., 1940, Yale; Ph.D., 1956, Cornell.

EDITH BETTS, 1951 (1968), Professor of Physical Education; Chairman, Physical Education for Women; B.S., 1943, Wisconsin; M.S., 1951, Smith; Ph.D., 1968, Oregon.

*JANE D. BETTS, 1967 (1973), Assistant Extension Professor and Washington County Extension Home Economist, Weiser; B.S.H.Ec., 1967, Idaho.

RONALD D. BEVANS, 1970 (1972), Associate Professor of Architecture; B.Arch., 1964, Nebraska; M.Arch., 1965, Washington (Seattle).

WILLIAM R. BIGGAM, 1959 (1966), Professor of Industrial Education; Chairman, Industrial Education; B.S., 1947, Minnesota (Duluth); M.A., 1948, Minnesota (Minneapolis); Ed.D., 1957, Bradley.

JAMES A. BIKKIE, 1973 (1976), Professor of Vocational Teacher Education; Division Director, 1973-; B.S., 1956, St. Cloud State; M.A., 1957, Ph.D., 1973, Minnesota.

WILLIAM A. BILLINGSLEY, 1954 (1967), Professor of Music (Theory, Composition); B.Mus.Ed., 1952, M.Mus., 1953, Drake.

*MAURINE BINGHAM, 1975, Extension Instructor and Oneida County Extension Home Economist, Malad; B.S., 1974, Brigham Young; M.S., 1975, Utah State.

*DONALD C. BIRD, 1974, Affiliate Professor of Industrial Education; Resident Director, Idaho National Engineering Laboratories, Idaho Falls; A.S., 1962, Ricks; B.S., 1965, Utah State; M.S., 1969, Brigham Young; Ed.D., 1973, Texas A & M.

GUY W. BISHOP, 1957 (1970), Professor of Entomology; Entomologist; B.S., 1951, M.S., 1953, Oregon State; Ph.D., 1958, Washington State.

ELWOOD G. BIZEAU, 1967 (1972), Associate Professor of Wildlife Management; Assistant Leader, Idaho Cooperative Wildlife Research Unit; B.S., 1948, Oregon State; M.S.For., 1951, Idaho.

THEODORE C. BJORNN, 1966 (1972), Professor of Fishery Management; Leader, Idaho Cooperative Fishery Unit; B.S., 1956, Utah State; M.S., 1957, Idaho; Ph.D., 1966, Utah State.

*CHRISTINE M. BJORNSTAD, 1975, Affiliate Clinical Professor of Medical Science, Lewiston; B.S., 1968, Vassar; M.D., 1972, Michigan.

*CELIA M. BLACK, 1975, Extension Instructor and Twin Falls County Extension Home Economist, Twin Falls; B.S., 1974, Idaho.

JAMES L. BLACK, 1966 (1976), Associate Professor of Adult Education; B.A., 1949, M.S., 1953, Idaho; Ed.D., 1969, Washington State.

ROBERT E. BLACK, 1954 (1974), Extension Professor and District Extension Supervisor, Moscow; B.S.Ag., 1950, Arkansas; M.S.Ag., 1964, Idaho.

BLAIR K. BLACKER, 1974, Assistant Professor of Military Science; B.S., 1965, Oregon State.

GLENN D. BLAISDELL, 1973, University Physician; B.S., 1954, M.D., 1956, Baylor.

ROBERT H. BLANK, 1971 (1975), Associate Professor of Political Science; B.A., 1965, Purdue; M.A., 1969, Ph.D., 1971, Maryland.

PAUL L. BLANTON, 1958 (1972), Professor of Architecture; Head, Department of Art/Architecture, 1971-; B.S., 1957, Idaho; M.Arch., 1963, California (Berkeley).

*CARL C. BLICKENSTAFF, 1974, Affiliate Professor of Entomology, Twin Falls; B.S., 1943, Purdue; M.S., 1956, Ph.D., 1956, Iowa State.

GEORGE L. BLOOMSBURG, 1961 (1969), Professor of Agricultural Engineering and Engineering Science; Chairman, Engineering Science; Agricultural Engineer; B.S.Ag.E., 1957, M.S.Ag.E., 1959, Idaho; Ph.D., 1964, Colorado State; P.E.

*EDWARD L. BOAS, 1975, Affiliate Clinical Professor of Medical Science, Moscow; B.A., 1960, Idaho; M.D., 1964, George Washington.

*RUTH H. BOAS, 1958 (1968), Professor Emerita of English; B.A., 1925, M.A., 1928, Idaho. Emerita since 1968 (now residing in Moscow, Idaho).

GENE E. BOBECK, 1967 (1972), Associate Professor of Metallurgy; B.A., 1952, Knox; M.S., 1956, Iowa State; Ph.D., 1970, Denver.

LARRY E. BOBISUD, 1967 (1974), Professor of Mathematics; B.S., 1961, College of Idaho; M.S., 1963, Ph.D., 1966, New Mexico.

*GLENN L. BODILY, 1946 (1976), Extension Professor and Owyhee County Extension Agricultural Agent, Marsing; B.S.Ag., 1939, M.S.Ag., 1939, Idaho.

*DAVID P. BODINE, 1974, Extension Instructor and Latah County

Extension Agricultural Agent, Moscow; B.S., 1969, M.S., 1972, Idaho.

ARTHUR A. BOE, 1967 (1976), Professor of Plant Sciences; Plant Physiologist; B.S., 1962, Ph.D., 1966, Utah State.

*MICHAEL P. BOHN, 1975, Affiliate Professor of Civil Engineering, INEL, Idaho Falls; B.S., 1968, Virginia Polytechnic; M.S., 1969, Ph.D., 1973, Stanford.

*DARRELL G. BOLZ, 1971 (1976), Associate Extension Professor and Canyon County Extension Agricultural Agent, Caldwell; B.S.Ag., 1966, M.S., 1970, Idaho.

ISABEL E. BOND, 1971 (1974), Instructor and Director, Upward Bound Program; B.S., 1954, Idaho.

JOHN G. BOND, 1968, Professor of Geology; Senior Geologist; B.S., 1954, Idaho; M.S., 1959, Ph.D., 1962, Washington (Seattle).

CECIL W. BONDURANT, 1962 (1974), Senior Instructor in Radio/Television; Director of Radio/TV Engineering; B.S., 1952, American Television Institute of Technology.

*JAMES A. BONDURANT, 1969, Affiliate Professor of Agricultural Engineering, Snake River Conservation Research Center, U.S. Department of Agriculture, Kimberly; B.S., 1949, Kansas State; M.S., 1951, Nebraska.

*LALIA P. BOONE, 1965, Professor Emerita of English (Linguistics); B.A., 1938, East Texas State; M.A., 1947, Oklahoma; Ph.D., 1951, Florida. Emerita since 1972 (now residing in Moscow, Idaho).

BERNARD C. BORNING, 1949 (1962), Professor of Political Science; B.A., 1936, Ph.D., 1951, Minnesota.

LEO F. BORON, 1971 (1974), Assistant Professor of Mathematics; B.S., 1944, M.A., 1946, Michigan.

*ALFRED W. BOWERS, 1949 (1959), Professor Emeritus of Anthropology/Sociology; B.S., Beloit; M.S., Ph.D., Chicago. Emeritus since 1967 (now residing in Moscow, Idaho).

RAYMOND J. BOYD, JR., 1963, Affiliate Professor of Silviculture, U.S. Forest Service, Moscow; B.S., 1948, M.F., 1950, Colorado State.

*MARILYN E. BRADBURY, 1967 (1976), Associate Extension Professor, Extension Youth/Home Economics Journalist, and Extension Home Economist for the Lapwai Indian Reservation, Lapwai; B.S.H.Ec., 1944, Iowa State; M.S., 1967, Oregon.

RICHARD E. BRADFIELD, 1974, Assistant Professor of Sociology; B.A., 1969, M.A., 1972, Arizona.

*DONALD L. BRAKENSIEK, 1974, Affiliate Professor of Agricultural Engineering, Northwest Watershed Research Center, USDA, Boise; B.S.Ag.E., 1951, M.S., 1952, Illinois; Ph.D., 1955, Iowa State.

R. BRUCE BRAY, 1961 (1974), Secretary of the University Faculty with rank of Professor, 1968-; B.A., 1949, M.Mus., 1955, Oregon.

JAMES E. BRICKELL, 1964, Affiliate Professor of Forest Mensuration, U.S. Forest Service, Moscow; B.S., 1961, Washington State; M.F.R., 1971, Washington.

ETHEL M. BRIGHT, 1972, Affiliate Professor of Education, Moscow; B.S.Ed., 1970, M.Ed., 1972, Idaho.

*JOHN B. BRITZMANN, 1975, Affiliate Clinical Professor of Medical Science, Moscow; B.A., 1953, M.D., 1957, Iowa.

*WILLIAM J. BROCKELBANK, 1943 (1945), Professor Emeritus of Law; B.A., 1919, Haverford; LL.B., 1923, Harvard; LL.M., 1932, Montpelier; Doctor en Droit, 1934, Paris. Emeritus since 1965 (now residing in Moscow, Idaho).

*CHARLES E. BROCKWAY, 1965 (1974), Associate Research Professor of Civil Engineering (Water Resources), Kimberly; B.S.C.E., 1959, Idaho; M.S.C.E., 1960, California Institute of Technology.

*RONALD D. BROOKS, 1975, Affiliate Clinical Professor of Medical Science, Moscow, B.A., 1949, M.D., 1953, Kansas

*DAVID H. BROWN, 1973, Affiliate Professor of Industrial Education, INEL, Idaho Falls; B.S.M.E., 1960, Cincinnati; M.S., 1965, Idaho.

DENNIS G. BROWN, 1971 (1975), Associate Professor of Chemistry; B.A., 1965, Whitman; Ph.D., 1969, Illinois.

*MAX W. BROWN, 1972, Affiliate Professor of Accounting, INEL, Idaho Falls; B.S., 1953, Ricks College; M.S., 1970, Utah State.

*MELVIN J. BROWN, 1973, Affiliate Professor of Soil Sciences, Snake River Conservation Research Center, U.S. Department of Agriculture, Kimberly; B.S., 1960, Utah State; M.S., 1963, California (Riverside).

MICHAEL E. BROWNE, 1967, Professor of Physics (Department Chairman, 1967-1975); B.S., 1952, Ph.D., 1955, California (Berkeley).

*ROBERT M. BRUGGER, 1956, Affiliate Professor of Physics, INEL, Idaho Falls; B.S., 1951, Colorado College; M.S., 1953, Ph.D., 1955, Rice.

*STEVEN D. BRUMLEY, 1970, Affiliate Professor of Business Administration, INEL, Idaho Falls; B.S., 1965, J.D., 1968, Nebraska.

*GLENN S. BRUNSON, 1971, Affiliate Professor of Nuclear Engineering, INEL, Idaho Falls; B.S., 1945, U.S. Military Academy; M.S., 1950, Princeton.

MERLYN A. BRUSVEN, 1965 (1975), Professor of Entomology; Entomologist; B.S., 1959, M.S., 1961, North Dakota State; Ph.D., 1965, Kansas State.

*JAMES A. BUCKHAM, 1956, Affiliate Professor of Chemical Engineering, INEL, Idaho Falls; B.S., 1945, M.S., 1948, Ph.D., 1953, Washington.

JANICE I. BUCKNER, 1971 (1976), Associate Extension Professor and Extension Textiles and Clothing Specialist, Moscow; B.S., 1966, M.S., 1970, North Dakota State.

BRUCE P. BUDGE, 1955-1957, 1968-1969, 1972 (1972), Professor of Accounting; Department Chairman, 1972-; B.S.Bus., 1953, M.S., 1957, Idaho; Ph.D., 1968, Minnesota.

RICHARD C. BULL, 1967 (1972), Associate Professor of Animal Science; Associate Animal Scientist; B.S., 1957, M.S., 1960, Colorado State; Ph.D., 1966, Oregon State.

*MARLENE M. BUNDERSON, 1957-1967, 1970 (1971), Associate Extension Professor and Bear Lake County Extension Home Economist, Paris; B.S., 1955, Ricks; M.S., 1957, Utah State.

G. ELLIS BURCAW, 1966 (1970), Associate Professor of Museology and of Anthropology; Director, University Museum, 1966-; Study Abroad Adviser; B.A., 1943, Maryville (Tenn.); M.A., 1973, Idaho.

SUSAN S. BURCAW, 1969, State Coordinator of Correspondence Study, 1969-; Executive Assistant, President's Office, 1974-; B.A., 1958, Pennsylvania State; M.A.T., 1972, Idaho.

*GARY RICHARD BURDICK, 1976, Affiliate Professor of Mathematics, INEL, Idaho Falls; A.B., 1962, Miami (Oxford, Ohio); A.M., 1969, Ph.D., 1973, Cincinnati.

*E. MILDRED BURLINGAME, 1942 (1969), Professor Emerita of Psychology; A.B., 1925, M.A., 1927, Stanford; Ph.D., 1930, Minnesota. Emerita since 1969 (now residing in Moscow, Idaho).

VERNON H. BURLISON, 1946 (1971), Extension Professor and Extension Forester, Moscow; B.S.For., 1943, M.S.For., 1949, Idaho.

*BLAINE W. BURNHAM, 1975, Affiliate Professor of Mathematics.

INEL, Idaho Falls; B.S., 1966, Idaho State; M.A., 1968, Ph.D., 1973, Arizona State.

GEORGE E. BURROWS, 1975, Associate Professor of Veterinary Medicine; Associate Veterinarian; B.S., 1964, D.V.M., 1966, California (Davis); M.S., 1969, Ph.D., 1972, Washington State.

JOHN R. BUSCH, 1970 (1976), Associate Professor of Agricultural Engineering; Assistant Agricultural Engineer; B.S.Ag.E., 1965, Colorado State; M.S., 1967, Ph.D., 1975, Idaho.

CORLANN G. BUSH, 1967, Director of Special Services, 1974-; B.A., 1965, Bowling Green State; M.S., 1967, Montana State.

JOHN H. BUSH, 1974 (1975), Assistant Professor of Geology; B.A., 1965, Bowling Green State; M.S., 1967, Montana State; Ph.D., 1973, Washington State.

C. RANDALL BYERS, 1973, Assistant Professor of Statistics and Management; B.S., 1968, Idaho; M.S., 1969, Wyoming; Ph.D., 1973, Minnesota.

ROLAND O. BYERS, 1954 (1962), Professor of General Engineering; Chairman, General Engineering; B.S., 1946, M.S., 1949, Ohio.

WILLIAM A. BYRD, 1965 (1974), Associate Professor of Radio/Television; Coordinator, Instructional TV; Production and Promotion Director, KUID-TV; B.A., 1954, Whitman; M.S., 1956, Syracuse.

DAVID N. BYRNE, 1975, Instructor in Entomology and Research Associate; B.A., San Jose State, 1971.

*EDNA M. CADDIS, 1973, Affiliate Professor of Dietetics, Deaconess Hospital, Spokane, Wa.; B.S., 1954, Cincinnati; R.D.

*LOUIS C. CADY, 1922 (1938), Professor of Chemistry and Dean Emeritus (Dean, Graduate School, 1953-1965); B.S.Ch.E., 1925, M.S., 1927, Idaho; Ph.D., 1934, Wisconsin. Emeritus since 1966 (now residing in Walla Walla, Washington).

HARRY H. CALDWELL, 1948 (1965), Professor of Geography; B.A., 1941, Clark; M.S., 1946, Nebraska; Ph.D., 1951, Clark.

*ROBERT H. CALLIHAN, 1967 (1976), Associate Research Professor of Plant Sciences (Weed Science), Aberdeen; B.S.Ag., 1957, Idaho; M.S., 1961, Ph.D., 1972, Oregon State.

*MARK B. CALNON, 1945 (1973), Extension Professor Emeritus (Ada County Extension Agricultural Agent, 1945-1973); B.S.Ag., 1940, Idaho. Emeritus since 1973 (now residing in Meridian, Idaho).

LUCAS CALPOUZOS, 1971, Professor of Plant Sciences; Head, Department of Plant and Soil Sciences, 1971-; Plant Pathologist; B.S., 1950, Cornell; Ph.D., 1955, Harvard.

JAMES E. CALVERT, JR., 1967 (1976), Professor of Mathematics; A.B., 1963, California (Berkeley); M.A., 1964, Ph.D., 1966, California (Davis).

COLIN CAMPBELL, 1962 (1969), Catalog Librarian with rank of Instructor; B.A., 1957, New Hampshire; M.L.S., 1961, Rutgers.

DAVID C. CAMPBELL, 1972 (1975), Associate Professor of Economics; B.Comm., 1955, British Columbia; M.A., 1967, San Francisco State; M.S., 1969, Ph.D., 1971, California (Berkeley).

HOWARD E. CAMPBELL, 1963, Professor of Mathematics; Department Chairman, 1963-; B.S., 1946, M.S., 1947, Ph.D., 1949, Wisconsin.

JOYCE B. CAMPBELL, 1972 (1976), Associate Professor of Radio/Television; Program Director, KUID-TV; A.B., 1958, Stanford; M.A., 1968, San Francisco State.

ELMER R. CANFIELD, 1975, Associate Professor of Forestry; B.S., 1964, Ph.D., 1969, Idaho.

MARIE K. CARANO, 1974, Professor of Home Economics; Extension Professor; Director, School of Home Economics, 1974-; B.S., 1959, M.S., 1961, Nevada; Ed.D., 1970, Oklahoma State.

C. SEYMOUR CARD, 1973, Associate Professor of Veterinary Science; Associate Veterinarian; B.S., 1951, Maine; M.S., 1953, D.V.M., 1957, Cornell.

JOHN E. CARLSON, 1970 (1974), Associate Professor of Sociology and Associate Research Professor of Agricultural Economics; B.S., 1964, M.A., 1969, Ph.D., 1972, Washington State.

*GLENN F. CARNAHAN, 1973, Affiliate Professor of Plant Science, USDA Plant Materials Center, Aberdeen; B.S., 1959, M.S., 1960, Utah State.

*GENE P. CARPENTER, 1966, Assistant Research Professor of Entomology, Kimberly; B.Sc., 1955, Oklahoma State; M.S., 1961, Ph.D., 1963, Oregon State.

*FREDERICK O. CARTAN, 1965, Affiliate Professor of Chemistry, INEL, Idaho Falls; B.S., 1951, California (Berkeley); Ph.D., 1959, Montana State.

*DAVID L. CARTER, 1969, Affiliate Professor of Soils, Snake River Conservation Research Center, U.S. Department of Agriculture, Kimberly; B.S., 1955, M.S., 1956, Utah State; Ph.D., 1960, Oregon State.

*JOHN N. CARTER, 1973, Affiliate Professor of Soil Sciences, Snake River Conservation Research Center, U.S. Department of Agriculture, Kimberly; B.S.Ag., 1943, Missouri; M.S., 1948, Ph.D., 1950, Illinois.

*LOUISE A. CARTER, 1923, Dean of Women Emerita (Dean of Women, 1944-1958); B.A., 1915, Washington; M.A., 1926, Columbia. Emerita since 1958 (now residing in Los Angeles, California).

SHERMAN F. CARTER, 1969, Professor of Business; Financial Vice President/Bursar, 1969-; Treasurer, Board of Regents; B.S., 1956, Georgia; M.B.A., 1958, Syracuse; Ph.D., 1968, American.

*CHARLES E. CARTMILL, 1974, Affiliate Professor of Mechanical Engineering, INEL, Idaho Falls; B.S.M.E., 1962, M.S., 1963, Brigham Young; Ph.D., 1970, Arizona.

*JOHN W. CARY, 1969, Affiliate Professor of Soils, Snake River Conservation Research Center, U.S. Department of Agriculture, Kimberly; B.S., 1956, M.S., 1958, Colorado State; Ph.D., 1961, Utah State.

*RICHARD L. CASPERSON, 1974, Affiliate Professor of Civil Engineering, INEL, Idaho Falls, B.S., 1963, Colorado State; M.S., 1966, Colorado.

SAMUEL S. M. CHAN, 1963 (1970), Associate Professor of Mining Engineering; B.S., 1957, Cheng Kung; M.S.Min.E., 1960, M.S.Geol., 1962, Missouri School of Mines & Metallurgy; Ph.D., 1966, Idaho.

ZAYE CHAPIN, 1968, Associate Professor of Sociology (Social Work); B.A., 1948, California (Los Angeles); M.S.W., 1964, Southern California.

EDMUND M. CHAVEZ, 1951 (1972), Professor of Theatre Arts; Department Head, 196S-; B.A., 1949, Southwest Texas State; M.F.A., 1951, Texas.

*THOMAS J. CHESTER, 1939 (1971), Extension Professor and District Extension Supervisor, Pocatello; B.S.Ag., 1938, Idaho.

FRANCES CHILES, 1974, Assistant Professor of Foreign Languages and Literatures (Spanish); B.A., 1964, M.A., 1966, Colorado; Ph.D., 1974, Stanford.

*HARRY CHINCHINIAN, 1975, Affiliate Clinical Professor of Medical Science, Lewiston; B.A., 1952, Colorado; M.D., 1959, Marquette.

*LAURENCE D. CHIPMAN, 1974, Affiliate Professor of Business, INEL, Idaho Falls; B.S.E.E., 1961, Idaho; M.B.A., 1974, California State.

*LYNN J. CHRISTENSEN, 1971, Affiliate Professor of Engineering, INEL, Idaho Falls; B.S., 1962, Idaho State; M.S., 1965, Utah State.

CHARLES O. CHRISTENSON, 1964 (1972), Associate Professor of Mathematics; B.A., 1958, M.A., 1960, Kansas; Ph.D., 1964, New Mexico State.

ROSS E. CHRISTIAN, 1956 (1967), Professor of Animal Science; Animal Scientist; B.S., 1947, Pennsylvania State; M.S., 1949, Ph.D., 1951, Wisconsin.

*OSCAR O. CHRISTIANSON, 1949 (1970), Professor Emeritus of Bacteriology; A.B., 1928, St. Olaf; M.D., 1932, Rush. Emeritus since 1970 (now residing in Spokane, Washington).

*RUSSELL L. CHRYSLER, 1959, Professor of Marketing and Department Chairman Emeritus (Chairman, Department of Business, 1969-1974); B.B.A., 1932, M.A., 1937, Minnesota; Ph.D., 1953, Northwestern. Emeritus since 1974 (now residing in Moscow, Idaho).

*RAMSEY C. K. CHUN, 1972, Affiliate Professor of Civil Engineering, INEL, Idaho Falls; B.S., 1966, M.S., 1967, Ph.D., 1971, California (Berkeley).

*LEON J. CHURCH, 1972 (1976), Assistant Extension Professor and Minidoka County Extension Agricultural Agent, Rupert; B.S., 1972, Idaho.

*DELON M. CLARK, 1974, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1959, Utah State; M.B.A., 1973, Idaho.

KATHY D. CLARK, 1974, Instructor in Physical Education; Head, Women's Athletics; Women's Volleyball Coach; B.S., 1967, Oregon State; M.S., 1970, Massachusetts.

ROBERT W. CLARK, 1956 (1971), Professor of Accounting (Department Chairman, 1969-1972); B.S.Bus., 1956, M.S.Bus., 1958, Idaho; C.P.A.

*GEORGE W. CLEVELAND, 1934-1945, 1950-1957, 1961 (1973), Extension Professor and Extension Dairyman Emeritus; B.S., 1931, Utah State. Emeritus since 1974 (now residing in Boise, Idaho).

DONALD F. CLIFTON, 1957 (1968), Professor of Metallurgy; B.S., 1940, Michigan College of Mining and Technology; Ph.D., 1957, Utah.

JOHN I. COBB, 1969, Associate Professor of Mathematics; B.A., 1960, Florida State; M.A., 1961, Ph.D., 1966, Wisconsin.

*JOHN E. COCHRAN, 1974, Affiliate Professor of Crop Management, Tetonia; B.S., 1968, Seattle Pacific; M.S., 1972, Wyoming.

*ALLEN M. COCHRANE, 1975, Affiliate Clinical Professor of Medical Science, Lewiston; B.S., 1940, North Dakota; M.D., 1942, Rush (Chicago).

*ROBERT C. COLBURN, 1975, Affiliate Clinical Professor of Medical Science, Lewiston; B.A., 1948, Minnesota; M.D., 1952, Washington.

*J. WAYNE COLE, 1957 (1971), Associate Extension Professor and Cassia County Extension Agricultural Agent, Burley; B.S.Ag., 1950, Idaho.

*REX M. COLLIER, 1966, Professor Emeritus of Psychology; B.A., 1927, Iowa; M.S., 1929, Ph.D., 1934, Northwestern. Emeritus since 1970 (now residing in Sun City, Arizona).

DENNIS C. COLSON, 1975, Associate Professor of Law; B.A., 1968, Northern Colorado; J.D., 1970, Denver.

*JAMES B. COLSON, 1960, Affiliate Professor of Electrical Engineering, INEL, Idaho Falls; B.S., 1957, Utah; M.S., 1959, New York.

PAUL C. CONDITT, 1961 (1975), Head, Acquisitions Department, University Library, with rank of Associate Professor; B.A., 1956, Trinity (San Antonio); M.S., 1958, Columbia.

*WILLIAM H. CONE, 1924 (1947), Professor of Chemistry and Department Head Emeritus (Head, Department of Physical Sciences, 1947-1959); B.S., 1924, M.S., 1927, Idaho; Ph.D., 1936, Washington. Emeritus since 1964 (now residing in Walnut Creek, California).

*WILLIAM D. CONWAY, 1974, Affiliate Professor of English, INEL, Idaho Falls; B.A., 1959, M.A., 1963, Brigham Young; M.S., 1969, Hawaii; Ph.D., 1970, Nebraska.

JAMES H. COOLEY, 1957 (1968), Professor of Chemistry; B.A., 1952, M.S., 1954, Middlebury; Ph.D., 1958, Minnesota.

DON H. COOMBS, 1973, Professor of Communication; Director, School of Communication, 1973-; B.A., 1953, M.A., 1957, Iowa; Ph.D., 1968, Stanford.

ROBERT W. COONROD, 1969, Professor of History (Russian History); Vice President for Academic Affairs, 1969-; B.S., 1942, Southwest Missouri State; M.A., 1947, Ph.D., 1950, Stanford.

*ROBERT D. COPP, 1973, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1965, B.S., 1966, Washington State; M.B.A., 1970, Idaho.

*ROBERT L. COPYAK, 1973, Affiliate Professor of Electrical Engineering, INEL, Idaho Falls; B.S.E.E., 1960, M.S.N.E., 1964, Wyoming.

*ORMAND L. CORDES, 1972, Affiliate Professor of Physics, INEL, Idaho Falls; B.S.E.E., 1958, Kansas; M.S., 1963, Idaho.

*CLEON C. COWIN, 1945 (1965), Professor Emeritus of Chemistry; B.S., 1921, William Jewell; M.S., 1932, Idaho. Emeritus since 1965 (now residing in Mesa, Arizona).

*CARL G. CRABTREE, 1974, Extension Instructor and Idaho County Extension Agricultural Agent, Grangeville; B.S., 1974, Idaho.

JAMES E. CRANDALL, 1967 (1971), Professor of Psychology; B.A., 1955, M.P.S., 1956, Colorado; Ph.D., 1963, Oregon.

*LESTER C. CRISMON, 1975, Affiliate Clinical Professor of Medical Science, Lewiston; B.A., M.A., 1934, Utah; M.D., 1939, Chicago.

*CHARLENE M. CRITCHELL, 1973, Extension Instructor and Extension Home Economist for Blaine, Camas, and Lincoln Counties, Shoshone; B.A.H.Ec., 1972, Idaho State.

CAROLYN S. CRON, 1972, Director of University Relations, 1975-; B.A., 1972, Idaho.

FRANK A. CRONK, 1972 (1973), Assistant Professor of Art; B.Arch., 1965, M.A., 1967, M.F.A., 1972, Idaho.

BERT C. CROSS, 1962 (1972), Professor of Journalism (Department Chairman, 1962-1974); B.A., 1947, Washington; M.S., 1951, Oregon.

*VIRGIL S. CROSS, 1940 (1967), Extension Professor Emeritus (Extension Agricultural Agent for Teton County, 1940-1946; for Jerome County, 1946-1960; for Cassia County, 1960-1967); B.S.Ag., 1930, Idaho. Emeritus since 1967 (now residing in Burley, Idaho).

*H. WARD CROWLEY, 1956 (1969), Professor Emeritus of Mathematics (Director, Computer Services, 1962-1973); B.A., 1931, M.A., 1932, Washington State; Sc.M., 1937, Brown; Ph.D., 1965, Washington State. Emeritus since 1973 (now residing in Deer Park, Washington).

*HELEN H. CUNNINGHAM, 1961 (1972), Research Professor Emerita of Home Economics Research; B.S., 1928, Idaho; M.S., 1938, Iowa State. Emerita since 1972 (now residing in Moscow, Idaho).

NELSON S. CURTIS, 1969 (1973), Associate Professor of Art; B.F.A., 1963, Memphis Academy of Arts; M.F.A., 1969, Idaho.

*JOHN H. CUSHMAN, 1919 (1927), Professor Emeritus of English; B.A., 1913, Brown; M.A., 1914, Harvard. Emeritus since 1961 (now residing in Moscow, Idaho).

GERALDINE F. DACRES, 1959 (1971), Associate Professor of Office Administration; B.S.Com.Ed., 1945, M.S.Bus.Ed., 1963, Idaho.

*BECKY L. DAHL, 1972 (1976), Assistant Extension Professor and Clearwater County Extension Home Economist, Orofino; B.A., 1972, Iowa State.

JEROME J. DAHMEN, 1947 (1968), Professor of Animal Science; Animal Scientist; B.S.Ag., 1947, Idaho; M.S., 1952, Ph.D., 1966, Oregon State.

*GORDON H. DAILEY, 1946 (1971), Associate Extension Professor and Latah County Extension Agricultural Agent, Moscow; B.S.Ag., 1934, Idaho.

RICHARD T. DAILEY, 1973, Associate Professor of Economics; Director, Center for Business Development and Research, 1973-; B.S., 1953, M.S., 1958, Ph.D., 1968, Pennsylvania State.

*PAUL D. DALKE, 1947, Professor Emeritus of Wildlife Management; B.S.F., 1925, M.S.F., 1928, Ph.D., 1934, Michigan. Emeritus since 1967 (now residing in Moscow, Idaho).

*CLARENCE E. DALLIMORE, 1955 (1975), Associate Extension Professor of Plant Sciences (Plant Pathology) and Area Potato Specialist, Idaho Falls; B.S., 1940, Utah State; M.S., 1943, Nebraska.

HARRY E. DAVEY, JR., 1950-1952, 1961, Director of Student Financial Aids, 1974-; B.S., 1939, U.S. Naval Academy; M.Ed., 1964, Idaho.

*JEFFREY LEE DAVIDSON, 1975, Extension Instructor and Camas County Extension Agricultural Agent, Fairfield; B.S., 1973, M.S., 1975, Colorado State.

ANNA M. DAVIS, 1975, Assistant Extension Professor and Management Information Specialist; B.S., 1967, Idaho.

JACK L. DAVIS, 1967 (1974), Associate Professor of English; B.A., 1957, M.A., 1959, Washington State; Ph.D., 1967, New Mexico.

*JAMES R. DAVIS, 1968 (1976), Research Professor of Plant Sciences (Plant Pathology), Aberdeen; A.B., 1956, California (Riverside); M.S., 1961, Ph.D., 1967, California (Davis).

*JAY N. DAVIS, 1973, Affiliate Professor of Industrial Education, INEL, Idaho Falls; B.S.M.E., 1962, Washington.

KAREN R. DAVIS, 1969, Assistant Research Professor of Home Economics Research (Nutrition); Assistant Home Economist; B.S., 1963, M.S., 1969, Wyoming.

LARRY L. DAVIS, 1973, Assistant Professor of Aerospace Studies; B.Arch., 1965, Miami (Ohio); M.A., 1972, Ball State (European Campus, Zweibruecken).

LAWRENCE W. DAVIS, JR., 1968 (1976), Professor of Physics; B.A., 1952, Pomona; B.S., 1956, California Institute of Technology; Ph.D., 1961, Stanford.

LEO R. DAVIS, 1974, Associate Professor of Art; B.F.A., 1948, Oklahoma; M.F.A., 1969, Idaho.

*RAYNOLD D. DAVIS, 1961 (1971), Associate Extension Professor and Bonner County Extension Agricultural Agent, Sandpoint; B.S.Ag., 1951, Idaho.

STEVEN L. DAVIS, 1973 (1976), Professor of Animal Nutrition; Animal Scientist; B.S., 1964, M.S., 1966, Idaho; Ph.D., 1969, Illinois.

RICHARD L. DAY, 1961 (1966), Associate Professor of Geography; A.B., 1948, M.A., 1950, Clark; Ph.D., 1959, Illinois.

*LESLIE L. DEAN, 1950 (1968), Research Professor of Plant Sciences (Plant Pathology), Twin Falls; B.S.Ag., 1942, M.S.Ag., 1947, Idaho; Ph.D., 1951, Purdue.

*JOHN A. DEARIEN, 1969, Affiliate Professor of Civil Engineering, INEL, Idaho Falls; B.S., 1962, M.S., 1963, Arkansas; Ph.D., 1968, Missouri.

*CEDRIC G. d'EASUM, 1949 (1972), Extension Professor and Extension Editor Emeritus; B.A., 1930, Idaho. Emeritus since 1972 (now residing in Boise, Idaho).

*CHARLES O. DECKER, 1946, Dean of Students Emeritus (Dean of Students, 1960-1971; Director of Student Financial Aids, 1971-1974); B.A., 1940, Antioch; M.A., 1942, Northwestern. Emeritus since 1975 (now residing in Moscow, Idaho).

*DONALD M. DECKER, 1970, Affiliate Professor of English, INEL, Idaho Falls; A.B., 1951, M.A., 1952, Brigham Young.

*RICHARD W. DECKER, 1972, Affiliate Professor of Nuclear Engineering, INEL, Idaho Falls; B.S., 1953, Rochester.

GLENN H. DEITSCHMAN, 1970, Affiliate Professor of Silviculture, U.S. Forest Service, Moscow; B.S., 1947, Minnesota; M.F., 1948, Pennsylvania State.

DONALD DEL MAR, 1971, Associate Professor of Business; B.S., 1960, Maryland; M.A., 1967, D.B.A., 1970, Oklahoma.

ALAN A. DELUCIA, 1975, Assistant Professor of Geography and Director, Cart-O-Graphics; B.S., 1960, Rutgers; M.S., 1966, Ph.D., 1974, Washington (Seattle).

ROBERT E. DENTON, 1966, Affiliate Professor of Forest Entomology, U.S. Forest Service, Moscow; B.S., 1948, State University College of Forestry (Syracuse, N.Y.); M.F., 1950, Michigan.

JUDITH E. DERR, 1975, Visiting Instructor in Plant and Soil Sciences; B.S., 1971, Colorado; M.S., 1975, Washington State.

*MERRILL E. DETERS, 1940, Professor Emeritus of Forestry (Director, University Experimental Forest, 1940-1971); B.S., 1928, M.S., 1930, Ph.D., 1935, Minnesota. Emeritus since 1971 (now residing in Moscow, Idaho).

PHILIP A. DEUTCHMAN, 1968 (1973), Associate Professor of Physics; B.S., 1959, M.S., 1961, New Mexico; Ph.D., 1967, Oregon.

MELVIN L. DEWITT, 1959 (1974), Instructor in Animal Industries; Farm Superintendent; B.S., 1954, M.S., 1961, Idaho.

*KENNETH A. DICK, 1931 (1947), Professor of Accounting and Vice President Emeritus (Vice President for Financial Affairs, 1961-1967); B.S.Bus., 1931, M.S.Bus., 1938, Idaho; M.B.A., 1951, Stanford; C.P.A. Emeritus since 1967 (now residing in Moscow, Idaho).

*BILLY R. DICKEY, 1965, Affiliate Professor of Chemical Engineering, INEL, Idaho Falls; B.S., 1954, M.S., 1962, Ph.D., 1964, Texas A & M.

JOHN DICKINSON, 1973, Assistant Professor of Electrical Engineering; B.S.E.E., 1966, California (Berkeley); M.S.E.E., 1967, Ph.D., 1970, Denver.

PAUL F. DIERKER, 1966 (1976), Professor of Mathematics; B.S., 1960, Dayton; M.S., 1963, Ph.D., 1966, Michigan State.

MICHAEL J. DI NOTO, 1970 (1975), Associate Professor of Economics; B.A., 1967, M.A., 1969, Ph.D., 1973, SUNY (Buffalo).

JOHN E. DIXON, 1954 (1964), Associate Professor of Agricultural Engineering; Associate Agricultural Engineer; B.S.Ag., 1951, B.S.Ag.E., 1951, Oregon State; M.S.Ag.E., 1957, Idaho; P.E.

CLIFFORD I. DOBLER, 1941 (1968), Professor of Business Law; B.S., 1938, J.D., 1941, M.A., 1950, Idaho.

*DOUGLAS R. DEXTER, 1969, Affiliate Professor of Plant Sciences (Plant Pathology), U.S., Department of Agriculture, Aberdeen; B.S., 1961, Kent State; M.S., 1965, Wyoming; Ph.D., 1968, Minnesota.

LOIS DOYLE, 1975, Affiliate Professor of Home Economics, Moscow; B.S., 1945, Idaho.

ROBERT E. DOYLE, 1971-1972, 1974, Visiting Assistant Professor of Mechanical Engineering and Engineering Science; B.S., 1949, M.S., 1951, Ph.D., 1971, Wisconsin.

RICHARD J. DOZIER, 1971, Assistant Professor of English; B.A., 1960, Harvard; M.A., 1964, Duke; Ph.D., 1973, North Carolina.

JEANETTE L. DRISKELL, 1972, Learning Resource Specialist with rank of Senior Instructor; B.A., 1969, Lewis-Clark; M.A., 1971, Idaho.

OMAR H. DRURY, 1975, Affiliate Clinical Professor of Medical Science, Troy, Idaho; B.A., 1944, Walla Walla; M.D., 1948, Loma Linda.

H. SYDNEY DUNCOMBE, 1962 (1969), Professor of Political Science; Chairman, Department of Political Science and Public Affairs Research, 1972-; Director, Bureau of Public Affairs Research; B.A., 1948, Yale; M.P.A., 1955, Syracuse; Ph.D., 1963, Washington (Seattle).

*CHARLES S. DUNHAM, 1959 (1974), Associate Extension Professor and Extension Area 4-H Specialist, Pocatello; B.S.Ag., 1957, Idaho; M.S., 1967, Colorado State.

DARRELL W. DUNHAM, 1972 (1975), Associate Professor of Law; B.A., 1968, J.D., 1971, Willamette; LL.M., 1972, Harvard.

*ALFRED C. DUNN, 1941 (1955), Professor Emeritus of Art (Graphic Design); B.S., 1936, Idaho; M.F.A., 1950, California College of Arts and Crafts. Emeritus since 1974 (now residing in Moscow, Idaho).

*RONALD E. DUNN, 1975, Affiliate Clinical Professor of Medical Science, Moscow; B.S., 1957, Idaho; M.D., 1961, George Washington.

ANTHONY K. DUNNAM, 1975, Assistant Professor of Aerospace Studies; B.S., 1959, West Texas State; M.B.A., 1969, Indiana.

*RONALD DUPONT, 1975, Affiliate Clinical Professor of Medical Science, Moscow; B.S., 1960, Aquinas; M.D., 1964, Marquette.

MARY H. DUPREE, 1971 (1974), Assistant Professor of Music (History and Literature); B.A., 1966, Hollins; M.A., 1971, North Carolina (Chapel Hill).

*EDWARD P. DUREN, 1960 (1974), Extension Professor and Area Extension Livestock Agent for Bear Lake, Caribou, and Franklin Counties, Soda Springs; B.S.Ag., 1957, Kansas State; M.S.Ag., 1959, Idaho.

*DONALD D. DUSAULT, 1923 (1962), Professor of Chemistry and Registrar Emeritus (Registrar, 1944-1962); B.S., 1923, M.S., 1926, Idaho. Emeritus since 1962 (now residing in Moscow, Idaho).

*RUTH C. DYER, 1964 (1971), Associate Extension Professor and Bannock County Extension Home Economist, Pocatello; B.S., 1950, Minnesota.

*JAMES I. EAKIN, 1956-1960, 1965 (1971), Assistant Extension Professor and Blaine County Extension Agricultural Agent, Hailey; B.S., 1951, Utah State.

JOHN O. EARLY, 1971 (1976), Research Professor of Agricultural Economics; Extension Professor and Extension Agricultural Economist (Marketing Information), Moscow; B.S., 1950, Ohio State; M.S., 1956, Colorado State; Ph.D., 1971, Ohio State.

*MELVIN F. ECHMAN, 1975, Affiliate Professor of Industrial Education, INEL, Idaho Falls; B.S., 1961, M.S., 1969, Utah State.

W. LEE ECKHARDT, 1975, Associate Professor of Law; A.B., 1969, Duke; J.D., 1972, Harvard.

ANTON A. EDER, 1972 (1975), Assistant Professor of Architecture; B.S., 1963, Stanford; B.Arch., 1972, M.Arch., 1973, Idaho.

*FRED L. EDMISTON, 1967 (1976), Associate Extension Professor and Washington County Extension Agricultural Agent, Weiser; B.S.Ag., 1964, Idaho.

*HERBERT M. EDWARDS, 1947 (1971), Associate Extension Professor and Elmore County Extension Agricultural Agent, Mountain Home; B.S.Ag., 1947, Idaho.

LOUIS L. EDWARDS, JR., 1961 (1971), Professor of Chemical Engineering; B.S.Ch.E., 1958, Rensselaer Polytechnic; M.S.Ch.E., 1960, Delaware; Ph.D., 1966, Idaho.

*ROBERT T. EGGEN, 1970, Affiliate Professor of Bacteriology, St. Luke's Hospital, Spokane, Wa.; B.Sc., 1950, M.D., 1954, Alberta.

JOHN H. EHRENREICH, 1971, Professor of Forestry (Ecology); Dean, College of Forestry, Wildlife and Range Sciences, 1971-; Director, Forest, Wildlife and Range Experiment Station; B.S., 1951, M.S., 1954, Colorado State; Ph.D., 1956, Iowa State.

RONALD D. ENSIGN, 1952 (1955), Professor of Plant Sciences; Plant Breeder (Associate Director, Agricultural Experiment Station, 1955-1972); B.S., 1946, Northwest Missouri State; M.S., 1949, Colorado State; Ph.D., 1952, Cornell.

*L. F. ERICKSON, 1969, Affiliate Professor of Civil Engineering, Idaho Department of Highways, Boise; B.S.C.E., 1937, Idaho.

LAMBERT C. ERICKSON, 1945 (1964), Professor Emeritus of Plant Sciences; Weed Scientist; B.S., 1940, Minnesota; M.S., 1943, Wyoming; Ph.D., 1962, Minnesota. Emeritus since 1975 (now residing in Moscow, Idaho).

VICTOR P. EROSCHENKO, 1973, Assistant Professor of Zoology and Veterinary Medicine; A.A., 1959, Sacramento City College; B.A., 1961, M.S., 1970, Ph.D., 1973, California (Davis).

SANTIAGO C. ESTRADA, 1973, Assistant Dean for Student Advisory Services; A.A., 1967, Fullerton; B.A., 1971, California State; M.Ed., 1973, Washington State.

*DUANE H. ESPELAND, 1976, Affiliate Clinical Professor of Medical Science, Boise; B.A., 1960, M.D., 1964, Washington (Seattle).

DALE O. EVERSON, 1962 (1967), Professor of Statistics; Statistician; B.S.Ag., 1952, M.S.Ag., 1956, Idaho; Ph.D., 1960, Iowa State.

*ARTHUR W. FAHRENWALD, 1919 (1929), Research Professor of Metallurgy and Dean Emeritus (Dean, College of Mines, 1934-1954); B.S.Met.E., 1914, South Dakota School of Mines and Technology; E.M., 1916, New Mexico Institute of Mining and Technology; LL.D., 1970, Idaho. Emeritus since 1960 (now residing in Moscow, Idaho).

THOMAS N. FAIRCHILD, 1974, Assistant Professor of Guidance and Counseling; B.S., 1969, M.Ed., 1971, Idaho; Ph.D., 1974, Iowa.

*DEAN E. FALK, 1974, Assistant Extension Professor and District Extension Dairyman, Twin Falls; B.S., 1970, M.S., 1972, Idaho.

DENNIS G. FALK, 1974, Instructor in Animal Science and Research Associate; B.S., 1970, Idaho.

C. MICHAEL FALTER, 1969 (1972), Associate Professor of Fishery Management; B.S., 1964, Kansas State; M.S., 1966, Pittsburgh; Ph.D., 1969, Idaho.

MELVIN W. FARLEY, 1953 (1966), Professor of Education; Director, Clinical Experiences in Teacher Education; A.B., 1940, Westmar; A.M., 1948, South Dakota; Ph.D., 1953, Nebraska.

*COLETTE W. FARRAR, 1956 (1967), Extension Professor Emerita (Home Demonstration Agent for the Fort Hall Indian Reservation, Fort Hall, 1956-1967); B.S., 1942, Oregon State. Emerita since 1967 (now residing in Ketchum, Idaho).

JAMES R. FAZIO, 1974, Assistant Professor and Chairman of Wildland Recreation Management, 1975-; B.S., 1964, West Virginia; M.P.S., 1971, Cornell; Ph.D., 1974, Colorado State.

*MARION FEATHERSTONE, 1931-1946, 1948 (1967), Professor Emerita of Home Economics; B.S.Ed., 1925, Idaho; M.A.Ed., 1931, Southern California. Emerita since 1967 (now residing in Moscow, Idaho).

SCOTT V. FEDALE, 1976, Assistant Professor of Agricultural Information; Assistant Extension Professor; Assistant Agricultural and Extension Editor for Radio/Television; A.S., 1970, Rutgers; B.S., 1972, Pennsylvania State.

*ELIZABETH H. FEMRITE, 1973, Affiliate Professor of Dietetics, Veterans Administration Hospital, Boise; B.S., 1937, Wisconsin; R.D.

HARRY S. FENWICK, 1956 (1971), Professor of Plant Sciences; Extension Professor, Moscow; B.S., 1949, M.S., 1953, Montana State; Ph.D., 1956, Oregon State.

J. HOMER FERGUSON, 1964 (1975), Professor of Zoology; B.S., 1958, Sul Ross State; Ph.D., 1964, Arizona.

*JACOB B. FERGUSON, 1975, Affiliate Professor of Nuclear Engineering, INEL, Idaho Falls; B.S., 1954, Texas Christian.

*EDWARD A. FIEZ, 1970 (1973), Associate Extension Professor and District Extension Dairyman, Caldwell; B.S., 1963, Fresno State; M.S., 1970, Idaho.

*EVAN E. FILBY, 1974, Affiliate Professor of Chemistry, INEL, Idaho Falls; A.A., 1963, Yuba; B.S., 1966, San Jose State; Ph.D., 1971, New Mexico State.

*FRANK E. FINLAYSON, JR., Affiliate Professor of Accounting, INEL, Idaho Falls; B.A., 1968, Idaho; MBA, 1973, Saint Louis.

ARTHUR M. FINLEY, 1950 (1955), Professor of Plant Sciences (Head, Department of Plant Sciences, 1955-1971); Plant Pathologist; B.S., 1941, M.A., 1948, Ph.D., 1950, Missouri.

LARRY G. FISHER, 1973, Visiting Assistant Professor of Architecture; B.S., 1959, M.S., 1961, Washington State.

*WAYNE F. FISHER, 1975, Associate Extension Professor and Extension Farm Safety Specialist, Boise; B.S., 1968, M.S., 1970, Nebraska (Lincoln).

*JOHN C. FISKE, 1970 (1975), Professor Emeritus of Foreign Languages and Literatures (French); A.B., 1930, Harvard; A.M., 1940, Columbia; Ph.D., 1954, Harvard. Emeritus since 1975 (now residing in Moscow, Idaho).

DELBERT W. FITZSIMMONS, 1959 (1971), Professor of Agricultural Engineering; Department Chairman, 1972-; Agricultural Engineer; B.S.Ag.E., 1959, M.S.Ag.E., 1962, Idaho; Ph.D., 1970, Washington State; P.E.

*NORMAN D. FITZSIMMONS, 1955 (1971), Associate Extension Professor and Clearwater County Extension Agricultural Agent, Orofino; B.S.Ag., 1952, M.S.Ag., 1968, Idaho.

MAX E. FLETCHER, 1958 (1965), Professor of Economics; Department Head, 1968-1972, 1974-; B.A., 1946, Washington; M.A., 1949, Idaho; Ph.D., 1957, Wisconsin.

JERRAN T. FLINDERS, 1975, Associate Professor of Wildlife Resources; B.S., 1967, M.S., 1968, Utah; Ph.D., 1971, Colorado State.

MARVIN W. FOILES, 1970, Affiliate Professor of Silviculture, U.S. Forest Service, Moscow; B.S., 1947, Colorado State.

STEPHEN R. FOLKS, 1975, Visiting Assistant Professor of Music (Violin); B.Mus., 1967, M.Mus., 1968, Arizona.

*CAROLYN A. FOLZ, 1945 (1972), Law Librarian Emerita with rank of Professor; A.B., 1929, Evansville; B.S.L.S., 1933, Illinois; M.A., 1939, Idaho. Emerita since 1972 (now residing in Moscow, Idaho).

*WILLIAM E. FOLZ, 1935 (1945), Professor of Agricultural Economics and Department Head Emeritus (Head, Department of Agricultural Economics, 1950-1971); B.S., 1927, Evansville; M.S., 1933, Ph.D., 1935, Illinois. Emeritus since 1972 (now residing in Moscow, Idaho).

O. CLIFFORD FORBES, 1957 (1967), Associate Professor of Zoology; A.B., 1950, Humboldt State; M.A., 1952, Ph.D., 1958, California (Berkeley).

ROSE L. FORBES, 1965, Assistant Professor of Home Economics (Foods); B.S., 1962, M.S., 1964, Pennsylvania State.

*ROBERT L. FORSTER, 1975, Assistant Research Professor of Plant Science, Assistant Extension Professor, and Extension Plant Pathologist, Kimberly; B.S., 1969, Rutgers; M.S., 1972, Ph.D., 1975, North Carolina State.

KATHERYN M. FORIYES, 1967 (1975), Associate Professor of English; B.S., 1965, Wisconsin State (La Crosse); M.F.A., 1967, Iowa.

MARGARET W. FOSBERG, 1966, Superintendent of Nurses, Student Health Service; R.N., 1944, Emory University School of Nursing.

MAYNARD A. FOSBERG, 1949 (1972), Professor of Soil Science (Soil Genesis and Classification); Soil Scientist; B.S., 1948, M.S., 1949, Ph.D., 1963, Wisconsin.

*ZEPH H. FOSTER, 1963 (1972), Professor of Education; Resident Clinical Supervisor, Boise; B.A., 1951, Walla Walla; M.S.Ed., 1956, Ed.D., 1963, Idaho.

FLOYD W. FRANK, 1955 (1965), Professor of Veterinary Science; Department Head, 1967-; Veterinarian; Dean, Idaho Faculty of the Northwest College of Veterinary Medicine at Washington State University; B.S., 1951, D.V.M., 1951, Ph.D., 1963, Washington State.

*DELANCE F. FRANKLIN, 1942, Research Professor Emeritus of Horticulture; B.S.Ag., 1942, M.S.Ag., 1955, Idaho. Emeritus since 1974 (now residing in Parma, Idaho).

*HILDA FREDERICK, 1935 (1966), Extension Professor Emerita (District Home Demonstration Agent, 1935-1941; Home Demonstration Agent, 1953-1955; Home Management Specialist, 1955-1966); B.S., 1929, Utah State; M.A., 1934, California. Emerita since 1966 (now residing in Salt Lake City, Utah).

*KENNETH R. FREDERIKSEN, 1951 (1973), Research Professor of Animal Science, Dubois; B.S.Ag., 1950, Idaho; M.S., 1961, Colorado State.

*MARY ANN FREEMAN, 1975, Extension Instructor and Jerome County Extension Home Economist, Jerome; B.S., 1971, Idaho.

*MARK L. FREER, 1969 (1976), Associate Professor of Education; Resident Clinical Supervisor, Lewiston; A.B., 1959, Miami; M.Ed., 1968, Ed.D., 1972, Idaho.

*CALVIN KIRK FRENCH, 1976, Affiliate Professor of Accounting, INEL, Idaho Falls; B.A., 1968, Thiel.

MARIAN I. FRYKMAN, 1947 (1969), Professor of Music (Piano, Organ, Harpsichord); B.S.Mus.Ed., 1938, M.A., 1950, Minnesota.

ROBERT R. FURGASON, 1957 (1967), Professor of Chemical Engineering; Dean, College of Engineering, 1974- (Department Chairman, 1963-1974); B.S.Ch.E., 1956, M.S.Ch.E., 1958, Idaho; Ph.D., 1961, Northwestern; P.E.

MALCOLM M. FURNISS, 1963, Affiliate Professor of Forest Entomology, U.S. Forest Service, Moscow; B.S., 1950, California (Berkeley); M.S., 1966, Idaho.

*JERRY B. FUSSELL, 1973, Affiliate Professor of Nuclear Engineering, INEL, Idaho Falls; B.S.M.E., 1967, M.S., 1968, Ph.D., 1972, Georgia Institute of Technology.

*HOMER I. FUTTER, 1949-1950, 1954 (1974), Extension Professor Emeritus (Extension Agricultural Agent for Lemhi County, 1949-1950; for Idaho County, 1954-1956; for Latah County, 1956-1974); B.S.Ag., 1948, Idaho. Emeritus since 1974 (now residing in Moscow, Idaho).

*EDWARD V. GAGE, 1975, Extension Instructor and Minidoka County Extension Agricultural Agent, Rupert; B.S., 1971, Central Washington State; M.S., 1975, Arkansas.

GEORGE GAGON, 1947, University Engineer; Director, Physical Plant; B.S.C.E., 1936, Idaho; P.E.

*HAROLD F. GALLAGHER, 1972, Affiliate Professor of Industrial Education, INEL, Idaho Falls; B.S., 1943, Detroit; M.S., 1947, Michigan.

*GEORGE F. GARDNER, 1965 (1971), Associate Extension Professor and Oneida County Extension Agricultural Agent, Malad; B.S.Ag., 1953, M.S.Ag., 1957, Idaho.

*MAX A. GARDNER, 1961 (1971), Associate Extension Professor and Payette County Extension Agricultural Chairman and Agent, Payette; B.S.Ag., 1960, M.S.Ag., 1961, Idaho.

*JAY G. GARNER, 1946 (1973), Extension Professor and Area Extension Potato Specialist, Blackfoot; B.S.Ag., 1943, Idaho.

*RICHARD W. GARNER, 1964, Affiliate Professor of Physics, INEL, Idaho Falls; B.S., 1958, Oklahoma; M.S., 1963, Idaho.

VERL G. GARRARD, 1946 (1970), Associate Professor of Chemistry; B.S.Ch.E., 1945, M.S., 1952, Idaho; Ph.D., 1967, Utah.

*NORMAN L. GATES, 1975, Affiliate Professor of Veterinary Medicine, U.S. Sheep Station, Dubois; D.V.M., 1961, Texas A & M; M.P.H., 1965, Tulane.

GEORGE L. GAUNT, 1975, Assistant Professor of Zoology; B.A., 1966, North Carolina; M.S., 1968, Michigan; Ph.D., 1970, Rockefeller University.

JUDITH A. GEORGE, 1975, Assistant Professor of Physical Education Administration; B.S., 1964, Mundelein; Ph.D., 1974, Minnesota.

*FLOYD C. GEPHART, 1958 (1971), Assistant Extension Professor and Lewis County Extension Agricultural Agent, Nez Perce; B.S.Ag., 1952, M.S.Ag., 1966, Idaho.

*JANET L. GETTMAN, 1973, Affiliate Professor of Dietetics, Deaconess Hospital, Spokane, Wa.; B.S.H.Ec., 1967, Eastern Washington State; R.D.

SHAIKH M. GHAZANFAR, 1968 (1972), Associate Professor of Economics; B.A., 1962, M.A., 1964, Ph.D., 1968, Washington State.

LINDA K. GIBBS, 1975, Instructor in Special Education and Regional Special Education Consultant; B.S., 1971, M.Ed., 1974, Idaho.

*RAPHAEL S. GIBBS, 1934-1936, 1946 (1953), Professor Emeritus of Journalism (Director of Information and University Editor, 1949-1970); B.A., 1934, Idaho. Emeritus since 1970 (now residing at Cape Canaveral, Florida).

*CATHERINE C. GIBERT, 1961, Professor Emerita of Foreign Languages (French) B.A., 1917, Ohio Wesleyan; M.A., 1918, Ohio State. Emerita since 1965 (now residing in Greeley, Colorado).

*CHAD C. GIBSON, 1968 (1971), Assistant Extension Professor and Adams County Extension Agricultural Agent, Council; B.S.Ag., 1965, Idaho; M.S., 1967, Nevada.

*GENE W. GIBSON, 1966 (1974), Assistant Extension Professor and Extension Animal Scientist, Twin Falls; B.S.Ag., 1965, M.S., 1971, Idaho.

*MARJORIE E. GIEBLER, 1973, Assistant Extension Professor and Bonneville County Extension Home Economist, Idaho Falls; B.S., 1963, Wisconsin.

NICHOLAS F. GIER, JR., 1972, Assistant Professor of Philosophy; B.A., 1966, Oregon State; M.A., 1969, Ph.D., 1973, Claremont Graduate School.

*EUGENE GILES, 1948 (1953), Professor Emeritus of Psychology (Counselor Education and School Psychology); B.A., 1926, M.A., 1926, Washington State; Ph.D., 1947, Washington. Emeritus since 1966 (now residing in Puyallup, Washington).

CAMPBELL M. GILMOUR, 1970, Professor of Bacteriology; Head, Department of Bacteriology and Biochemistry, 1970-; Bacteriologist; B.S.A., 1941, M.S.A., 1945, British Columbia; Ph.D., 1949, Wisconsin.

ARTHUR R. GITTINS, 1955 (1969), Professor of Entomology; Department Head, 1968-; Entomologist; B.Sc., 1952, Alberta; M.S.Ag., 1955, Idaho; Ph.D., 1963, Montana.

JOHN S. GLADWELL, 1973, Professor of Civil Engineering; Director, Water Resources Research Institute; B.S.Bus., 1953, Trinity; B.S.C.E., 1959, M.S.C.E., 1961, Texas A & M; Ph.D., 1970, Idaho.

E. BRUCE GODFREY, 1970 (1974), Associate Professor of Agricultural Economics and Associate Research Professor of Forestry; B.S., 1967, M.S., 1967, Utah State; Ph.D., 1970, Oregon State.

WILLIAM HAROLD GODWIN, 1975, Assistant Professor of Guidance and Counseling and of Psychology; Counselor, Student Counseling Center; B.A., 1970, Sonoma State; M.S., 1974, Ph.D., 1975, Washington State.

ROY H. GOETSCHEL, JR., 1969 (1976), Associate Professor of Mathematics; B.S., 1954, Northwestern; M.S., 1958, De Paul; Ph.D., 1966, Wisconsin.

ANN L. GOFF, 1969 (1975), Affiliate Professor of Home Economics, Moscow; B.S., 1946, Idaho.

*SUSAN M. GOHS, 1974, Extension Instructor and Bonner County Extension Home Economist, Sandpoint; B.S., 1974, Wisconsin.

CECIL V. GOLD, 1972 (1975), Assistant Professor of Music (Clarinet, Saxophone, Jazz Ensemble); B.Mus., 1969, Nebraska; M.Mus., 1972, Idaho.

ALAN H. GOLDMAN, 1974, Assistant Professor of Philosophy; B.A., 1967, Yale; M.A., 1968, Ph.D., 1972, Columbia.

EUGENE F. GOLIS, 1963 (1971), Associate Professor of Management; A.B., 1955, Vermont; M.B.A., 1961, Denver.

*REX I. GOOCH, 1946 (1971), Extension Professor and Jefferson County Extension Agricultural Agent, Rigby; B.S.Ag., 1941, Utah State.

*ROBERT A. GOODELL, 1960, Affiliate Professor of Mechanical Engineering, INEL, Idaho Falls; B.S., 1956, Brigham Young; M.S.M.E., 1961, Idaho.

*SERGIO R. GOSSMANN, 1963, Affiliate Professor of Electrical Engineering, INEL, Idaho Falls; B.S., 1955, Texas; M.S., 1962, Idaho.

EDGAR H. GRAHN, 1941-1943, 1946 (1962), Professor of Chemistry; Dean, Graduate School, 1975-; B.S., 1941, Puget Sound; M.S., 1948, Idaho; Ph.D., 1955, Illinois.

*ELNA H. GRAHN, 1947 (1969), Professor Emerita of Mathematics; B.S., 1935, M.S., 1941, Wisconsin. Emerita since 1969 (now residing in Moscow, Idaho).

DOUGLAS L. GRANT, 1968 (1971), Professor of Law; B.A., 1962, Iowa, J.D., 1967, Colorado.

*ERWIN GRAUE, 1928 (1935), Professor Emeritus of Economics; B.S., 1923, Ph.D., 1928, Cornell. Emeritus since 1965 (now residing in Valleyford, Washington).

JAMES L. GRAVES, 1949 (1971), Extension Professor; Associate Dean, College of Agriculture, 1972-; Director, Cooperative Extension Service, Moscow; B.S.Ag., 1949, Idaho; M.S., 1962, Wisconsin.

*C. LUCILE GRAY, 1946-1948, 1958 (1976), Extension Professor and Nez Perce County Extension Home Economist, Lewiston; B.S.H.Ec., 1945, Idaho.

EARL E. GRAY, 1962 (1966), Associate Professor of Electrical Engineering; B.S.E.E., 1955, M.E.E., 1960, Colorado State.

LEON G. GREEN, 1940 (1952), Professor of Physical Education (Principles, Administration, Problems); Director, Division of Health, Physical Education and Recreation, 1951-; Director of Athletics, 1973-; B.S.Ed., 1937, M.S.Ed., 1940, Idaho; Ed.D., 1953, New York.

MARJORIE L. GREEN, 1975, Instructor in Early Childhood Education and Coordinator for Head Start Training; B.A., 1969, Seattle Pacific.

WILLIAM R. GREEN, 1965 (1967), Assistant Professor of Mining Engineering; Mining Engineer; B.S., 1962, Idaho; M.S., 1964, Nevada.

WILLIAM S. GREEVER, 1949 (1958), Professor of History (American History); Department Head, 1956-; A.B., 1938, Pomona; A.M., 1940, Ph.D., 1949, Harvard.

*CEDRIC E. GREGORY, 1968, Professor Emeritus of Mining Engineering; B.E., 1931, B.A., 1944, Adelaide; B.Econ., 1960, M.E., 1960, Ph.D., 1966, Queensland; P.E. Emeritus since 1974 (now residing in Moscow, Idaho).

ROBERT J. GREGORY, 1972, Assistant Professor of Psychology; B.S., 1966, Washington, Ph.D., 1972, Minnesota.

TERRY L. GREGORY, 1971, Instructor in Animal Sciences; B.S., 1970, M.S., 1972, Idaho.

MERLAND W. GRIEB, 1956 (1969), Associate Professor of Chemistry; B.S., 1942, M.S., 1949, Idaho; Ph.D., 1953, Illinois.

*ROGER W. GRIEBE, 1970, Affiliate Professor of Mechanical Engineering, INEL, Idaho Falls; B.S., 1964, M.S., 1966, Ph.D., 1968, Purdue.

*EARL S. GRIMMETT, 1969, Affiliate Professor of Chemical Engineering, Idaho Nuclear Corp., Idaho Falls; B.S.Ch.E., 1943, M.S.Ch.E., 1948, Idaho.

*SIDNEY L. GROFF, 1973, Affiliate Professor of Geology, Montana Bureau of Mines and Geology, Butte; B.A., 1941, M.A., 1954, Montana; Ph.D., 1957, Utah.

*ROBERT J. GROSS, 1968 (1973), Assistant Extension Professor and Benewah County Extension Agricultural Agent and Chairman, St. Maries; B.S., 1965, Washington State.

*MILTON GROVER, 1942 (1966), Extension Professor Emeritus (Oneida County Extension Agricultural Agent, 1942-1966); B.S., 1934, M.S., 1942, Idaho. Emeritus since 1966 (now residing in Malad, Idaho).

*HAROLD R. GUENTHER, 1976, Associate Extension Professor and Twin Falls County Extension Agronomist, Twin Falls; B.S., 1959, M.S., 1965, Montana State; Ph.D., 1969, Washington State.

DONALD A. GUSTAFSON, 1944 (1965), Professor of Chemistry; B.S., 1937, Ph.D., 1945, Washington.

JAMES W. GUTHRIE, 1952 (1969), Professor of Plant Sciences; Plant Pathologist; B.S., 1949, M.S., 1950, Utah State; Ph.D., 1952, Wisconsin.

JUDITH A. HAAS, 1975, Instructor in Physical Education and Women's Gymnastics Coach; B.S., 1971, M.A., 1972, Kent State.

DONALD F. HABER, 1969 (1974), Professor of Engineering Science and Civil Engineering (Systems); B.S.E., 1956, M.S.E., 1960, Missouri; Ph.D., 1966, Oklahoma State; P.E.

*MILDRED HABERLY, 1941, Extension Professor Emerita (Home Demonstration Agent, 1941-1944; State Nutrition Specialist, 1944-1952; State Home Demonstration Leader, 1953-1966); B.S., 1928, Oregon State; M.S., 1941, Washington. Emerita since 1966 (now residing in Moscow, Idaho).

*FRANK E. HACKLER, 1946 (1971), Extension Professor Emeritus (Extension Agricultural Agent for Washington County, 1946-1971); B.S., 1942, Oregon State. Emeritus since 1971 (now residing in Weiser, Idaho).

W. KENT HACKMANN, 1967 (1972), Associate Professor of History (English History); B.A., 1959, Yale; M.A., 1962, Ph.D., 1969, Michigan.

*BUFORD W. HAFF, 1972, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1949, Kansas State; M.S., 1972, Idaho.

JACK I. HAGEN, 1965, Associate Research Professor of Electrical Engineering; B.S., 1948, M.S., 1949, Oregon State.

WAYNE R. HAGER, 1971 (1975), Associate Professor of Chemical Engineering and Engineering Science; B.S., 1963, Utah; Ph.D., 1972, Idaho.

PETER A. HAGGART, 1963 (1971), Associate Professor of Radio/Television; Department Chairman, 1972-; Program Director, KUID-TV; B.A., 1959, South Dakota; M.A., 1963, Kansas.

RICHARD R. HAHN, 1967 (1973), Associate Professor of Music (Flute); B.A., 1964, B.Mus., 1964, Washington State; M.Mus., 1966, Wisconsin.

SANDRA L. HAHN, 1970, Instructor in Music (Piano); B.A., 1962, Washington State; M.Mus., 1964, Wisconsin.

*KATHERINE M. HAKE, 1973, Assistant Extension Professor and Kootenai County Extension Home Economist, Coeur d'Alene; B.A., 1962, Northwest Nazarene; M.A.T.H.Ec., 1968, Idaho.

CHESTER D. HALL, 1967 (1970), Assistant Professor of Physical Education and Recreation; Swimming Coach; B.S.Ed., 1959, M.Nat.Sc., 1963, Idaho.

CHRISTOPHER J. HALL, 1971, Professor of Mining Engineering; B.Sc., 1949, Ph.D., 1951, London.

FORREST H. HALL, 1946 (1960), Professor of Civil Engineering (Structures); B.S., 1939, Colorado State; M.S.C.E., 1940, California Institute of Technology.

*GRANT B. HALL, 1950 (1971), Extension Professor and District Extension Supervisor, Boise; B.S.Ag., 1950, M.Ag., 1960, Idaho.

*RICHARD F. HALL, 1967 (1973), Research Professor of Veterinary Science; Extension Professor and Extension Veterinarian, Caldwell; B.S.Ag., 1953, Idaho; D.V.M., 1958, Washington State.

WILLIAM B. HALL, 1965 (1969), Professor of Geology; A.B., 1950, Princeton; M.S., 1951, Cincinnati; Ph.D., 1961, Wyoming.

*LEONARD HALLAND, 1921 (1960), Professor Emeritus of Physics; B.S.M.E., 1919, M.S.M.E., 1928, Idaho. Emeritus since 1960 (now residing in Great Falls, Montana).

JOHN H. HALLAQ, 1970 (1974), Associate Professor of Business; B.S., 1963, M.B.A., 1964, California (Los Angeles); Ph.D., 1972, Washington (Seattle).

DAVID A. HAMILTON, JR., 1970, Affiliate Professor of Forest Mensuration, U.S. Forest Service, Moscow; B.S., 1965, Iowa State.

*GEORGE HAMILTON, 1968 (1971), Assistant Extension Professor and Clark County Extension Agricultural Agent, Dubois; B.S.Ag., 1966, Idaho.

JOEL R. HAMILTON, 1970 (1974), Associate Professor of Agricultural Economics; Associate Agricultural Economist; B.S., 1966, Wisconsin; M.S., 1971, Ph.D., 1971, California (Berkeley).

*L. FRANK HAMILTON, 1975, Extension Instructor and Power County Extension Agricultural Agent, American Falls; B.S., 1974, Idaho.

*LEE W. HAMILTON, 1952 (1974), Associate Extension Professor and Extension Agricultural Agent for the Fort Hall Indian Reservation, Fort Hall; B.S.Ag., 1952, Idaho; M.A., 1961, Colorado State.

RICHARD G. HANNAFORD, 1970, Assistant Professor of English; B.A., 1963, Puget Sound; M.A., 1966, Ph.D., 1970, Indiana.

*IVY L. HANSEN, 1946 (1970), Extension Professor Emerita (Extension Home Economist for Bonneville County, 1946-1964; for Oneida County, 1964-1970); B.S., 1929, Utah State. Emerita since 1970 (now residing in Preston, Idaho).

*ROBERT H. HANSEN, 1968, Affiliate Professor of Business, INEL, Idaho Falls; M.B.A., 1967, Utah State.

*D. JAY HANSON, 1968 (1971), Assistant Extension Professor and Teton County Extension Agricultural Agent, Driggs; B.S.Ag., 1968, Idaho.

*DAVID C. HANSON, 1973, Affiliate Professor of Industrial Education, INEL, Idaho Falls; B.S.E.E., 1952, Washington.

*BEVERLY A. HANSTEN, 1969 (1974), Assistant Extension Professor and Owyhee County Extension Home Economist, Marsing; B.A., 1969, Idaho State.

JAMES H. HARDCASTLE, 1975, Assistant Professor of Civil Engineering; B.S., 1963, M.S., 1966, Ph.D., 1973, California (Berkeley).

ROGER W. HARDER, 1947 (1959), Associate Professor of Soil Science (Soil Fertility); Associate Soil Scientist; B.A., 1942, M.S., 1947, Wisconsin.

RODERICK R. HARDIES, 1965 (1976), Science/Technology Librarian with rank of Associate Professor; B.A., 1940, Washington; M.A., 1952, Columbia; M.L.S., 1955, Washington.

*GALE W. HARDING, 1974, Extension Instructor and Jefferson County Extension Agricultural Agent, Rigby; B.S., 1973, Idaho.

TERRY C. HARGRAVE, 1975, Visiting Assistant Professor of Architecture; B.Arch., 1965, Washington State.

*HARRY C. HARMSWORTH, 1944 (1953), Professor Emeritus of Sociology; A.B., 1928, M.A., 1932, Northern Colorado; Ph.D., 1943, Southern California. Emeritus since 1967 (now residing in Lacey, Washington).

ROBERT D. HARRIS, 1959 (1974), Professor of History (European History); B.A., 1951, Whitman; M.A., 1953, Ph.D., 1959, California (Berkeley).

DONALD A. HARTER, 1974, Extension Professor and Extension Agriculture/Community Resource Development Leader, Moscow; B.S., 1956, Pennsylvania State; M.Ed., 1965, Massachusetts; Ph.D., 1968, Wisconsin.

ERNEST W. HARTUNG, 1965, President; A.B., 1938, Dartmouth; A.M., 1940, Ph.D., 1944, Harvard; LL.D., 1965, Rhode Island; LL.D., 1966, College of Idaho.

G. MICHAEL HASS, 1974, Associate Professor of Biochemistry and Chemistry; Biochemist; B.A., 1965, Northwestern; Ph.D., 1969, Duke.

*KENT R. HASTINGS, 1971, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1964, Colorado; M.A., 1967, Western State.

CHARLES R. HATCH, 1973, Associate Professor of Forest Resources; Station Statistician; B.S.For., 1964, Montana; M.F., 1966, Oregon State; Ph.D., 1971, Minnesota.

CECIL W. HATHAWAY, 1955-1956, 1960 (1972), Professor of Civil Engineering (Transportation); B.S.C.E., 1955, Idaho; M.E., 1958, California (Berkeley); Ph.D., 1972, Washington; P.E.

*HUBERT E. HATTRUP, 1941 (1953), Professor of Electrical Engineering and Department Head Emeritus (Head, Department of Electrical Engineering, 1953-1966); B.S.E.E., 1930, E.E., 1946, Idaho; P.E. Emeritus since 1971 (now residing in Moscow, Idaho).

HAROLD F. HAUPT, 1963, Affiliate Professor of Forest Hydrology, U.S. Forest Service, Moscow; B.S.For., 1948, M.S.For., 1951, Idaho.

*E. MALCOLM HAUSE, 1948 (1963), Professor Emeritus of History and Political Science; B.A., 1922, Union; M.A., 1924, Nebraska; Ph.D., 1936, Northwestern. Emeritus since 1966 (now residing in Moscow, Idaho).

DONALD L. HAUXWELL, 1975, Visiting Professor of Natural Resources; B.S., 1960, Ph.D., 1967, Idaho.

*JAMES N. HAWKINS, 1970 (1975), Assistant Extension Professor and Custer County Extension Agricultural Agent, Challis; B.S.Ag., 1969, Idaho.

*RODGER G. HAWKINS, 1975, Affiliate Clinical Professor of Medical Science, Moscow; B.A., 1960, Utah; M.D., 1964, Oregon.

ROBERT C. HAYNES, 1955 (1974), Professor of Agricultural Education (Farm Mechanics); B.S.Ag., 1938, M.S.Ag., 1957, Idaho.

*WILLIAM F. HAZEN, 1970 (1974), Assistant Extension Professor and Twin Falls County Extension Agricultural Agent, Twin Falls; B.S.Ag., 1969, Idaho.

DENNIS I. HEDGES, 1975, Manager, The William H. Kibbie-ASUI Activity Center, 1975-; B.A., 1961, Oregon State.

FLORENCE A. HEFFRON, 1974, Assistant Professor of Political Science; B.A., 1964, SUNY (Albany); M.A., 1968, New York; Ph.D., 1971, Colorado.

RICHARD C. HEIMSCH, 1972, Assistant Professor of Bacteriology; Assistant Bacteriologist; B.A., 1965, Miami (Ohio); M.S., 1971, Ph.D., 1973, Wisconsin.

ROBERT C. HELLER, 1974, Research Professor of Forestry (Remote Sensing); B.S., 1940, M.F., 1941, Duke.

AUDUS W. HELTON, 1951 (1963), Professor of Plant Sciences; Plant Pathologist; B.A., 1947, M.S., 1949, Ohio Wesleyan; Ph.D., 1951, Oregon State.

MORRIS L. HEMSTROM, 1959 (1968), Associate Professor of Animal Science; Associate Animal Scientist; Associate Extension Professor and Extension Animal Scientist, Moscow: B.S., 1950, Colorado State; M.S., 1958, Nebraska.

DOUGLASS M. HENDERSON, 1972, Assistant Professor of Botany; B.A., 1965, Fresno State; Ph.D., 1972, Washington (Seattle).

JOANN H. HENDERSON, 1975, Associate Professor of Law; B.A., 1971, J.D., 1973, Idaho.

WILLIAM N. HENDERSON, 1973, University Physician; Director, Student Health Service, 1973-; M.S., 1946, Duke.

*ELEANOR K. HENINGHAM, 1966 (1975), Professor Emerita of English; A.B., 1931, Mount Holyoke; M.A., 1932, Ph.D., 1937, New York. Emerita since 1975 (now residing in Warsaw, New York).

*JOHN A. HENRY, 1963 (1971), Associate Extension Professor and Canyon County Extension Agricultural Agent, Caldwell; B.S.Ag., 1954, M.S.Ag., 1962, Idaho.

FERRIS O. HENSON, II, 1974, Assistant Professor of Special Education; B.S., 1969, M.A., 1972, Ph.D., 1974, Ohio State.

GEORGE G. HESPELT, 1957 (1966), Associate Professor of Electrical Engineering; B.S.E.E., 1953, Idaho; M.S.E.E., 1964, Oregon State.

*DONALD L. HESS, 1971, Extension Instructor and Extension Manpower Agent for Franklin and Oneida Counties, Malad; B.S., 1970, Brigham Young.

P. SCOTT HIGGINBOTTOM, 1969 (1973), Assistant Professor of Political Science; B.A., 1962, Kansas; J.D., 1965, Vanderbilt.

*ROBERT E. HIGGINS, 1946 (1974), Professor of Plant Science; Extension Professor, Twin Falls; B.S.Ag., 1941, M.S.Ag., 1959, Idaho.

*HERMAN G. HILFIKER, 1936 (1970), Extension Professor Emeritus (Extension Agricultural Agent for Bannock County, 1936-1938; for Bingham County, 1938-1941; for Ada County, 1941-1970); B.S.Ag., 1933, Idaho. Emeritus since 1970 (now residing in Boise, Idaho).

*A. DEE HILL, 1967, Affiliate Professor of Electrical Engineering, INEL, Idaho Falls; B.S., 1955, Utah; M.S., 1965, Idaho.

A. JEAN HILL, 1968 (1976), Associate Professor of Guidance and Counseling; Dean for Student Advisory Services, 1972-; B.Mus.Ed., 1964, M.S., 1966, Indiana; Ed.D., 1972, Washington State.

*KATHLEEN M. HILL, 1974, Extension Instructor and Boundary County Extension Home Economist, Bonners Ferry; B.S., 1969, North Dakota State.

*RUSSELL G. HILLMAN, 1950 (1971), Associate Extension Professor and Fremont County Extension Agricultural Agent, St. Anthony; B.S.Ag., 1950, Idaho.

*DAN D. HINMAN, 1974 (1975), Associate Professor of Ruminant Nutrition and Ruminant Nutritionist, Aberdeen; B.S., 1969, Montana State; M.S., 1971, Ph.D., 1973, Oklahoma State.

THOMAS E. HIPPLE, 1969 (1976), Professor of Guidance and Counseling; Chairman, Guidance and Counseling; B.S., 1954, Northern Illinois; M.S., 1959, Wisconsin; Professional Certificate, 1964, Missouri; Ph.D., 1970, Kent State.

MINORU HIRONAKA, 1954 (1972), Professor of Range Management; B.S., 1952, Utah State; M.S.For., 1954, Idaho; Ph.D., 1963, Wisconsin.

*KENNETH HOAG, 1935 (1948), Professor Emeritus of English; B.A., 1924, M.A., 1926, Michigan. Emeritus since 1967 (now residing in Tucson, Arizona).

*CHARLES W. HODGSON, 1945 (1974), Professor Emeritus of Animal Science; B.S.Ag., 1934, Idaho; M.S., 1936, Arizona; Ph.D., 1940, Michigan State. Emeritus since 1974 (now residing in Moscow, Idaho).

RAYMOND J. HOFF, 1962, Affiliate Professor of Forest Genetics, U.S. Forest Service, Moscow; B.A., 1957, Western Washington State; Ph.D., 1968, Washington State.

DWIGHT S. HOFFMAN, 1938 (1959), Professor of Chemical Engineering; Department Chairman, 1974-; B.S.Ch.E., 1938, M.S., 1947, Idaho; P.E.

JOSEPH E. HOFFMAN, 1975, Assistant Professor of Wildland Recreation Management; B.S., 1966, M.S., 1967, Colorado State; Ph.D., 1975, Minnesota (St. Paul).

*PAUL H. HOFHINE, 1972, Affiliate Professor of Electrical Engineering, INEL, Idaho Falls; B.S., 1962, Utah; M.S., 1967, Idaho.

CATHERINE A. HOFMANN, 1974, Visiting Assistant Professor of Economics; B.A., 1957, Washington State; M.A., 1964, Ph.D., 1969, Washington.

ARLAND D. HOFSTRAND, 1959 (1975), Associate Professor of Wood Utilization; B.S.For., 1950, M.S.For., 1952, Idaho.

*GEORGE W. HOGG, 1970, Affiliate Professor of Chemical Engineering, INEL, Idaho Falls; B.S., 1958, Iowa State; M.S., 1965, Ph.D., 1968, Idaho.

DOROTHY S. HOLE, 1957 (1976), Extension Professor and Assistant State 4-H Leader, Moscow; B.S., 1936, Oregon State; M.Ed., 1967, Colorado State.

*GLENN C. HOLM, 1974, Affiliate Professor of Veterinary Science, St. Anthony; B.S., 1932, M.S., 1933, Idaho; D.V.M., 1936, Iowa State.

*DONALD D. HOLT, 1972, Affiliate Professor of Education, Portland, Ore.; B.S., 1955, M.Ed., 1963, Oregon; Ed.D., 1972, Idaho.

JOHN P. HOLUP, 1971, Assistant Professor of Distributive Education; B.S., 1966, M.S., 1969, Bowling Green State.

*JANICE K. HOLWELL, 1971 (1975), Assistant Extension Professor and Fremont County Extension Home Economist, St. Anthony; A.S., 1968, Casper; B.S., 1970, Wyoming.

HUGH W. HOMAN, 1965 (1971), Associate Extension Professor and State Extension Entomologist, Moscow; B.S.Ed., 1957, M.S., 1965, Idaho.

ROBERT D. HOOK, 1968 (1976), Public Services Librarian with rank of Associate Professor; B.A., 1964, Chico State; M.A., 1968, San Jose State; M.P.A., 1975, Southern California.

*IVAN C. HOPKINS, 1959 (1971), Associate Extension Professor and Lincoln County Extension Agricultural Agent, Shoshone; B.S.Ag., 1956, Idaho.

*ANTON S. HORN, 1946 (1974), Extension Professor, Boise; B.S.Ag., 1937, Kansas State; M.S., 1941, Illinois.

MAURICE G. HORNOCKER, 1968 (1972), Professor of Wildlife Management; Leader, Idaho Cooperative Wildlife Research Unit; B.S., 1960, M.S., 1962, Montana; Ph.D., 1967, British Columbia.

*ROBERT E. HOSACK, 1943 (1953), Professor of Political Science and Department Chairman Emeritus (Chairman, Department of Social Sciences, 1947-1969; Department of Political Science and Public Affairs Research, 1969-1972); A.B., 1932, Wooster; A.M., 1934, Chicago; Ph.D., 1951, Duke. Emeritus since 1974 (now residing in Moscow, Idaho).

*ROY W. HOSKING, 1969, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1954, Purdue; M.B.A., 1961, Washington.

WILLIAM D. HOSKING, 1974, Professor of Aerospace Studies; Department Head, 1974-; B.A., 1949, Knox (Ill.); M.A., 1952, Hartford Foundation (Conn.).

JOHN R. HOSKINS, 1967, Professor of Mining Engineering; Head, Department of Mining Engineering and Metallurgy, 1968-; B.S.Min.E., 1947, Idaho; Ph.D., 1962, Utah.

JOHN E. HOUGHTON, 1974, Assistant Professor of Wood Products; B.S., 1969, Michigan State; M.B.A., 1970, Western Michigan; Ph.D., 1973, Michigan State.

CHARLES F. HOULBERG, 1972 (1974), Assistant Professor of Radio/Television; B.S., 1969, Southern Illinois; M.S., 1972, Brooklyn.

*BETTE A. HOVEY, 1968 (1973), Assistant Extension Professor and Power County Extension Home Economist, American Falls; B.S., 1968, Idaho State.

*CHARLES G. HOWARD, 1973, Affiliate Professor of Plant Sciences, USDA Plant Materials Center, Aberdeen, B.S.A., 1947, Arkansas.

TERRY R. HOWARD, 1973 (1976), Associate Professor of Geological Engineering; B.S.Geol.E., 1963, M.S.Geol.E., 1967, Idaho; Ph.D., 1973, California (Berkeley).

JOHN P. HOWE, 1956 (1968), Professor and Chairman of Wood Utilization; A.B., 1935, Amherst; M.S., 1955, Yale; Ph.D., 1966, Michigan.

*RONALD J. HOWELL, 1974, Affiliate Professor of Accounting, INEL, Idaho Falls, B.B.A., 1968, Idaho State; M.B.A., 1971, Idaho.

*MARY M. HUBBARD, 1973, Affiliate Professor of Dietetics, Department of Public Health, Spokane, Wa.; B.S.H.Ec., 1967, Idaho; M.P.H., 1967, Western Reserve; R.D.

*E. DAN HUGHES, 1969, Affiliate Professor of Mechanical Engineering, INEL, Idaho Falls; B.S., 1963, Clemson; M.S., 1967, Ph.D., 1969, North Carolina State.

*CLARENCE V. HULET, 1974, Affiliate Professor of Animal Science, U.S. Sheep Experiment Station, Dubois; B.S., 1952, Brigham Young; M.S., 1953, Ph.D., 1955, Wisconsin.

JOHN F. HULTQUIST, 1974, Associate Professor of Geography; B.A., 1965, Clarion State (Pa.); M.A., 1967, Cincinnati; Ph.D., 1972, Iowa.

NANCY B. HULTQUIST, 1974, Assistant Professor of Geography; B.A., 1965, Georgia State; M.A., 1967, Cincinnati.

BONNIE J. HULTSTRAND, 1975, Instructor in Physical Education and Women's Basketball and Track Coach; B.S., 1960, St. Cloud State; M.S., 1965, Washington State.

*ALLAN S. HUMPHREYS, 1969, Affiliate Professor of Agricultural Engineering, Snake River Conservation Research Center, U.S. Department of Agriculture, Kimberly; B.S., 1954, M.S., 1960, Utah State.

KENNETH E. HUNGERFORD, 1942-1945, 1946 (1959), Professor and Chairman of Wildlife Resources, 1974-; B.S.For., 1938, Idaho; M.S., 1940, Connecticut; Ph.D., 1952, Michigan.

LARRY O. HUNTER, 1975, Director of Management Information Services; B.S., 1959, M.S., 1962, Kansas State Teachers; M.Ed., 1965, Harvard.

*ALBERTA S. HYBERTSON, 1975, Assistant Extension Professor and Valley County Home Economist, Donnelly; B.A., 1970, Northwest Nazarene; M.A., 1975, Louisville.

*MILLARD W. ICKES, 1969, Affiliate Professor of Veterinary Science, Veterinarian, Nampa; B.S., 1943, Nebraska; D.V.M., 1950, Colorado State.

THOMAS E. INGERSON, 1968 (1970), Associate Professor of Physics; A.B., 1960, California (Berkeley); Ph.D., 1965, Colorado.

*SUSAN K. INOUYE, 1974, Extension Instructor and Payette County Extension Home Economist, Payette; B.S., 1973, Idaho.

ARTHUR U. IRIARTE, 1974 (1976), Associate Professor of Special Education; Chairman, Special Education Programs; B.S., 1964, St. Johns; M.S., 1967, Hofstra; Ph.D., 1974, Iowa.

MELBOURNE L. JACKSON, 1953 (1962), Research Professor of Chemical Engineering (Dean, Graduate School, 1965-1970); B.S., 1941, Montana State; Ph.D., 1948, Minnesota.

*FRANK H. JACOBS, 1954 (1971), Extension Professor and Madison County Extension Agricultural Agent, Rexburg; B.S.Ag., 1948, Idaho.

JOHN A. JACOBS, 1970 (1974), Associate Professor of Animal Science; Associate Animal Scientist; B.S., 1963, M.S., 1965, Kentucky; Ph.D., 1970, Wyoming.

RICHARD T. JACOBSEN, 1963 (1972), Associate Professor of Mechanical Engineering; B.S.M.E., 1963, M.S.M.E., 1965, Idaho; Ph.D., 1972, Washington State; P.E.

HAROLD W. JAMES, 1974, Associate Professor of Counseling; Coordinator, Vocational Rehabilitation Counseling Program; B.A., 1956, San Francisco State; M.S., 1969, Ph.D., 1972, Oregon.

*ALLEN S. JANSSEN, 1931 (1946), Professor of Civil Engineering and Dean Emeritus (Dean, College of Engineering and Director, Engineering Experiment Station, 1946-1967); B.Arch., 1930, B.S.C.E., 1933, M.S.C.E., 1937, Idaho; P.E. Emeritus since 1972 (now residing in Moscow, Idaho).

*DWIGHT S. JEFFERS, 1935, Professor of Forestry and Dean Emeritus (Dean, School of Forestry, 1935-1953); A.B., 1906, Illinois Wesleyan; M.F., 1911, Ph.D., 1935, Yale. Emeritus since 1953 (now residing in Des Moines, Washington).

HOBART G. JENKINS, 1974, Professor of Education; Director of Continuing Education, 1974-; B.S., 1948, B.Ed., 1949, M.A., 1951, Ed.D., 1970, Washington State.

TOM E. JENNESS, 1969 (1971), Assistant Professor of Speech; B.S., 1962, M.A., 1969, Brigham Young.

ALFRED W. JENSEN, 1968 (1971), Assistant Professor of Foreign Languages and Literatures (Spanish); B.A., 1963, Utah State; M.A., 1965, Ph.D., 1974, Wisconsin.

*MARVIN E. JENSEN, 1969, Affiliate Professor of Agricultural Engineering, Snake River Conservation Research Center, U.S. Department of Agriculture, Kimberly; B.S., 1951, M.S., 1952, North Dakota State; Ph.D., 1965, Colorado State.

*PANSY S. JENSEN, 1959 (1974), Extension Professor Emerita (Extension Home Economist for Valley County, 1959-1975); B.S., 1932, Linfield. Emerita since 1975 (now residing in Donnelly, Idaho).

*ERLING J. JOHANNESEN, 1945 (1971), Associate Extension Professor and Gem County Extension Agricultural Agent, Emmett; B.S.Ag., 1945, Idaho.

DONALD R. JOHNSON, 1968 (1975), Professor of Zoology; B.A., 1953, M.S., 1958, Idaho; Ph.D., 1962, Colorado State.

FREDERIC D. JOHNSON, 1952 (1972), Professor of Forestry (Ecology); B.S., 1950, Oregon State; M.S.For., 1952, Idaho.

*HYRUM G. JOHNSON, 1955 (1975), Extension Professor Emeritus (Franklin County Extension Agricultural Agent, 1955-58; Bear Lake Extension Agricultural Agent, 1958-75); B.S.Ag., 1952, Utah State; M.S.Ag., 1955, Idaho. Emeritus since 1975 (now residing in Paris, Idaho).

LEONARD R. JOHNSON, 1974, Assistant Professor of Forest Products; B.S., 1968, M.S., 1970, Montana State.

*LYNN F. JOHNSON, 1968 (1973), Research Professor of Agricultural Engineering, Aberdeen; B.S.Ag.E., 1953, M.S.Ag.E., 1958, Idaho.

MAURICE E. JOHNSON, 1958 (1971), Associate Extension Professor and State 4-H Leader, Moscow; B.S.Ag., 1956, M.S.Ag., 1957, Idaho.

RICHARD D. JOHNSON, 1972, Assistant Research Professor of Soils; Assistant Extension Professor and Extension Soils Specialist; B.S., 1967, Ph.D., 1973, Idaho.

LAWRENCE H. JOHNSTON, 1967, Professor of Physics; A.A., 1938, Los Angeles City College; A.B., 1940, Ph.D., 1950, California (Berkeley).

RICHARD A. JOHNSTON, 1969, Director of Alumni Relations; B.S., 1953, Idaho.

MELVIN G. JOLLY, 1975, Assistant Professor of Accounting; B.A., 1965, Seattle Pacific; M.B.A., 1967, The Warton School.

ARLENE T. JONAS, 1971, Instructor in Home Economics; B.S., 1953, M.S.H.Ec., 1971, Idaho.

*EARL G. JONES, 1970, Affiliate Professor of Accounting, INEL, Idaho Falls; B.S., 1950, Ricks; M.S., 1968, Idaho.

HAROLD L. JONES, 1969 (1973), Associate Professor of Accounting; B.S., 1948, Indiana; M.B.A., 1964, Harvard; C.P.A.

J. PRESTON JONES, 1967 (1975), Professor of Soil Science (Soil Fertility); Soil Scientist; B.S., 1957, Mississippi State; M.S., 1960, Ph.D., 1965, Arizona.

JAMES R. JONES, 1975, Assistant Professor of Agricultural Economics and Assistant Agricultural Economist; B.A., 1964, Southwest Missouri State; M.S., 1967, Oklahoma State.

ROBERT L. JONES, 1968, Professor of Law; A.B., 1948, Harvard; J.D., 1951, Michigan.

ROBERT W. JONES, 1958 (1966), Associate Professor of Geology; B.S., 1950, M.S., 1957, Ph.D., 1959, Washington.

ROWEN C. JONES, 1974, Assistant Professor of Child Development; B.A., 1967, Brigham Young; M.Ed., 1969, Ph.D., 1971, Oregon.

*MARILYN E. JORDAN, 1967 (1971), Assistant Extension

Professor, Extension Youth/Home Economics Journalist, and Extension Home Economist for the Lapwai Indian Reservation, Lapwai; B.S.H.Ec., 1944, Iowa State; M.S., 1967, Oregon.

FRANK S. JUNK, 1949 (1956), Associate Professor of Civil Engineering; B.S.C.E., 1937, Iowa; M.S.C.E., 1950, Idaho; P.E.

*FRANKLIN H. JUST, 1965, Affiliate Professor of Engineering, INEL, Idaho Falls; B.S., 1958, Utah State; M.S.E.E., 1963, Idaho.

*RICHARD E. KAISER, 1968, Affiliate Professor of Nuclear Engineering, INEL, Idaho Falls; B.S., 1959, Northwestern; M.S., 1961, Ph.D., 1967, Kansas State.

*RICHARD L. KAMBITSCH, 1946 (1971), Extension Professor and Nez Perce County Extension Agricultural Agent, Lewiston; B.S.Ag., 1943, Idaho.

PAUL F. KAUS, 1955 (1970), Associate Professor of Education; Director, Summer Sessions and Special Programs; Associate Director, Continuing Education; B.A., 1951, North Idaho (Lewiston); M.Ed., 1954, Ed.D., 1966, Washington State.

*JAMES D. KAUTZKY, 1973, Affiliate Professor of Accounting, INEL, Idaho Falls; B.A., 1970, Seattle; M.B.A., 1972, Colorado.

ROBERT J. KEARNEY, 1964 (1973), Professor of Physics; B.S., 1957, M.S., 1959, New Hampshire; Ph.D., 1964, Iowa State.

DONALD J. KEES, 1954 (1972), Professor of Guidance and Counseling; Director, Student Counseling Center, 1965-; Counseling Psychologist; B.S., 1951, M.S., 1952, Idaho; Ed.D., 1967, Washington State.

*THOMAS B. KEITH, 1947 (1949), Professor Emeritus of Animal Science; B.S.Ag., 1924, Idaho; M.S., 1926, Illinois; Ph.D., 1933, Pennsylvania State. Emeritus since 1966 (now residing in Moscow, Idaho).

*JOSEPH H. KELLER, 1968, Affiliate Professor of Chemistry, INEL, Idaho Falls; B.S., 1956, Washington (Md.); M.S., 1958, Pennsylvania State.

MICHAEL W. KELLER, 1974, Instructor in Physical Education; Track and Cross Country Coach; B.S., 1964, Washington State; M.Ed., 1968, Oregon State.

EDWARD L. KELLY, 1962 (1969), Professor of Education; B.S.Ed., 1953, M.Ed., 1954, Pennsylvania State; Ed.D., 1962, Illinois.

GWENDOLYN N. KELLY, 1972 (1975), Assistant Professor of Education; B.A., 1961, Denver; M.S., 1972, Idaho.

JOSEPH T. KELLY, 1970, Assistant Professor of Education; B.S., 1958, Nebraska; M.A., 1965, Denver; Ed.D., 1970, California (Berkeley).

*VIRGIL D. KENNEDY, 1945 (1971), Associate Extension Professor and Extension Community Resource Development Specialist, Boise; B.S.Ag., 1940, Oregon State; M.S.Ag., 1942, Iowa State.

*SAM G. KENZY, 1969, Affiliate Professor of Veterinary Science, Washington State University; B.S., 1934, South Dakota State; D.V.M., 1942, M.S., 1948, Ph.D., 1950, Iowa State.

ELIZABETH KESSEL, 1965 (1973), Associate Professor of Home Economics (Home Management-Equipment); B.S., 1948, Wisconsin State (Stevens Point); M.S.H.Ec., 1964, Idaho.

ROBERT M. KESSEL, 1957-1959, 1960 (1966), Professor of Office Administration and Business Education; Head, Department of Office Administration, 1960-; B.E., 1946, Wisconsin State (Whitewater); M.S., 1951, Ph.D., 1957, Wisconsin.

CARL E. KEY, JR., 1974, Assistant Professor of Military Science; B.S., 1966, Millikin.

SHIRLEY O. KIEHN, 1968, Assistant Professor of Home Economics (Education-Foods); B.A., 1943, B.Ed., 1949, M.A.T., 1967, Washington State.

DWIGHT L. KINDSCHY, 1947 (1961), Professor of Agricultural Education; Department Head, 1961-; B.S.Ag., 1939, Montana State; M.S., 1946, Iowa State; Ed.D., 1960, Washington State.

GERALD F. KING, 1972, Assistant Professor of Military Science; B.A., 1964, Idaho State; M.A., 1972, Richmond.

JOHN G. KING, 1972 (1976), Assistant Professor of Watershed Management; B.S., 1969, M.S., 1972, Minnesota.

*RICHARD R. KIRKENDALL, 1974, Affiliate Professor of Industrial Education, INEL, Idaho Falls; B.S., 1951, Northwestern.

ERIC B. KIRKLAND, 1947 (1966), Professor of Physical Education (Recreation, Administration); B.S., 1937, M.Ed., 1946, Washington (Seattle).

*MARY B. KIRKWOOD, 1930 (1954), Professor Emerita of Art; B.A., 1926, Montana; M.F.A., 1930, Oregon. Emerita since 1970 (now residing in Moscow, Idaho).

O. E. KJOS, 1965 (1972), Professor of Guidance and Counseling; B.S., 1942, North Dakota (Ellendale); M.Ed., 1949, Colorado State; Ed.D., 1954, Missouri.

*GALE E. KLEINKOPF, 1975, Associate Research Professor of Plant Pathology and Plant Physiologist, Kimberly; B.S., 1963, Idaho; Ph.D., 1970, California (Davis).

RONALD J. KLIMKO, 1968 (1976), Professor of Music (Bassoon, Theory, and Composition); B.Mus.Ed., 1959, Milton; M.Mus., 1963, Ph.D., 1968, Wisconsin.

GEORGE W. KLONTZ, 1972, Professor and Chairman of Fishery Resources, 1974-; B.S., 1955, M.S., 1959, Washington; D.V.M., 1963, Washington State.

MICHAEL D. KLUETZ, 1975, Assistant Professor of Chemistry; B.S., 1971, Wisconsin; Ph.D., 1975, Illinois.

JOSEPH E. KNIGHT, 1970, Assistant Professor of English; B.A., 1964, San Francisco; M.A., 1970, D.A., 1970, Ph.D., 1972, Oregon.

*LAWRENCE L. KNIGHT, 1970, Affiliate Professor of Bacteriology, St. Luke's Hospital, Boise; B.S.Pre-Med. 1956, Idaho; M.D., 1958, Washington.

CHARLES R. KNOWLES, 1970 (1976), Associate Professor of Geochemistry; Microprobe Analyst; M.S., 1964, Chicago.

JOHN W. KNUDSEN, 1972 (1976), Associate Professor of Economics; B.A., 1962, St. Olaf; Ph.D., 1970, Minnesota.

RUTHANN KNUDSON, 1974, Assistant Research Professor of Anthropology; Resource Management Archaeologist; B.A., 1963, M.A., 1966, Minnesota; Ph.D., 1973, Washington State.

*WALTER J. KOCHAN, 1955 (1970), Research Professor of Plant Sciences (Plant Physiology), Parma; B.S., 1950, M.S., 1952, Utah State; Ph.D., 1955, Rutgers.

*CARL T. KOENEN, 1975, Affiliate Clinical Professor of Medical Science, Lewiston, Idaho; A.B., 1954, Kalamazoo College; M.D., 1958, Marquette.

*EDWARD F. KOESTER, 1950 (1971), Extension Professor and Gooding County Extension Agricultural Agent, Gooding; B.S.Ag., 1947, M.S., 1968, Idaho.

FRED E. KOHL, 1950 (1971), Extension Professor and Assistant to the Director, Cooperative Extension Service, Moscow; B.S.Ag., 1950, Idaho; M.S., 1966, Ph.D., 1968, Wisconsin.

*JOHN J. KOLAR, 1956 (1968), Associate Research Professor of Plant Sciences (Crop Management), Twin Falls; B.S., 1950, M.S., 1952, Montana State; Ph.D., 1955, Iowa State.

*GARY E. KORTH, 1971, Affiliate Professor of Metallurgy, INEL, Idaho Falls; B.S., 1963, Ph.D., 1968, Utah.

DEMETRIUS J. KOUBOURLIS, 1971 (1975), Professor of Foreign

Languages and Literatures (Russian); B.A., 1963, Sacramento State; Ph.D., 1967, Washington (Seattle).

*JAMES E. KRAUS, 1941 (1946), Professor of Plant Sciences and Dean Emeritus (Dean and Director, College of Agriculture, Agricultural Experiment Station, and Cooperative Extension Service, 1955-1972); B.S., 1932, Colorado State; M.S., 1934, Wisconsin; Ph.D., 1940, Cornell. Emeritus since 1972 (now residing in Moscow, Idaho).

RUTH A. KRUKAR, 1971, Instructor in Library Science; B.A., 1965, Washington; Ed.M., 1961, Washington State.

GENE H. KRUPA, Assistant Professor of English, B.A., 1965, Stanford; M.A., 1967, Columbia; Ph.D., 1975, Iowa.

PAUL R. KUETNER, 1975, Visiting Instructor in Foreign Languages and Literatures (French); B.A., 1970, Hardin-Simmons; Diploma, 1975, Lille (France).

*GLENN R. KUNKEL, 1956 (1973), Extension Professor Emeritus (Extension Agricultural Agent for the Fort Hall Indian Reservation, 1956-1973); B.S.Ag., 1935, Idaho. Emeritus since 1973 (now residing in Twin Falls, Idaho).

*JAY F. KUNZE, 1959, Affiliate Professor of Physics, INEL, Idaho Falls; B.S., 1954, M.S., 1955, Ph.D., 1958, Carnegie-Mellon.

JAMES J. KUSKA, 1973, Associate Professor of Landscape Architecture; B.S., 1963, Michigan State; M.L.Arch., 1966, M.S., 1966, Illinois.

*CLIFFORD E. LAMPMAN, 1928, Professor Emeritus of Poultry Science; B.S.Ag., 1921, Wisconsin. Emeritus since 1965 (now residing in Spokane, Washington).

RICHARD H. LANE, 1971, Assistant Professor of Anthropology; B.A., 1965, Johns Hopkins; M.Phil., 1968, Ph.D., 1974, Yale.

*BRUCE Z. LANG, 1974, Affiliate Professor of Veterinary Science, Cheney, Wa.; B.A., 1960, Chico State; M.S., 1961, Ph.D., 1966, North Carolina.

ELISABETH LAPEYRE, 1975, Assistant Professor of Foreign Languages and Literatures (French); Licence d'anglais, 1959, Rennes (France); M.A., 1962, Ph.D., 1971, Northwestern.

EARL J. LARRISON, 1949 (1957), Associate Professor of Zoology; B.S., 1941, M.S., 1946, Washington.

*DORRELL C. LARSEN, 1956 (1971), Associate Extension Professor and Extension Irrigationist, Boise; B.S.Ag.E., 1952, Idaho; P.E.

*HOWARD A. LARSON, 1972, Affiliate Professor of Nuclear Engineering, INEL, Idaho Falls, B.S., 1960, M.S., 1962, North Dakota; Ph.D., 1970, Washington.

*JAMES M. LARSON, 1969, Affiliate Professor of Industrial Education, INEL, Idaho Falls; B.S., 1959, Utah State; M.S., 1969, Idaho.

MARIE L. LASSEY, 1975, Assistant Professor of Sociology; B.A., 1967, M.S., 1968, Ph.D., 1971, Utah.

CALVIN W. LATHEN, 1967 (1975), Associate Professor of Physical Education and Recreation; B.A., 1963; M.P.E., 1967, Idaho State; Ed.D., 1973, Idaho.

JOHN P. LAW, 1975, Associate Professor of Electrical Engineering; B.S., 1957, Case-Western Reserve; M.S., 1960, Ph.D., 1962, Wisconsin.

JOHN A. LAWRENCE, 1972, Associate Professor of Agricultural Education; B.S., 1950, M.S., 1966, Idaho.

CHARLES D. LEAPHART, 1965, Affiliate Professor of Forest Pathology, U.S. Forest Service, Moscow; B.S., 1948, Montana, M.F., 1949, Ph.D., 1954, Yale.

*MARSHALL J. LEBARON, 1947 (1971), Research Professor of Plant Sciences (Crop Management); Superintendent, Kimberly Research and Extension Center; Extension Professor; B.S.Ag., 1947, M.S.Ag., 1950, Idaho.

GARY A. LEE, 1975, Professor of Weed Science; B.S., 1964, M.S., 1965, Ph.D., 1971, Wyoming.

RONNAL L. LEE, 1973, Assistant Professor of Sociology; B.A., 1963, Ph.D., 1974, Colorado.

*GLEN E. LEGGETT, 1969, Affiliate Professor of Soil Sciences, Snake River Conservation Research Center, U.S. Department of Agriculture, Kimberly; B.S., 1950, M.S., 1951, Utah State; Ph.D., 1957, Washington State.

ROBERT E. LEHMAN, 1972, Assistant Professor of Psychology; B.A., 1967, Michigan; M.A., 1970, Ph.D., 1972, Oregon.

ROBERT R. LEONARD, 1966, Associate University Physician; M.D., 1948, Indiana.

DUANE J. LE TOURNEAU, 1953 (1963), Professor of Biochemistry; Biochemist; B.S., 1948, M.S., 1951, Ph.D., 1954, Minnesota.

CRAIG D. LEWIS, 1975, Visiting Associate Professor of Law; B.S., 1966, Northwestern; J.D., 1969, Yale.

GLENN C. LEWIS, 1947 (1967), Professor of Soil Sciences (Soil Chemistry); Soil Scientist; B.S.Ag., 1945, M.S.Ag., 1947, Idaho; Ph.D., 1962, Purdue.

LEON P. LIND, 1951 (1972), Associate Professor of Communication; Director, Audiovisual and Photography Center, 1971-; B.S., 1951, M.A., 1956, Idaho.

KARL H. LINDEBORG, 1959 (1969), Professor of Agricultural Economics; Agricultural Economist; B.S., 1947, Royal Veterinary & Agricultural College (Copenhagen); M.S., 1956, Utah State; Ph.D., 1959, Oregon State.

*MICHAEL J. LINEBERRY, 1974, Affiliate Professor of Physics, INEL, Idaho Falls; B.S., 1967, California (Los Angeles); M.S., 1968, Ph.D., 1972, California Institute of Technology.

*BLAINE LINFORD, 1961 (1974), Extension Professor and District Extension Supervisor, Twin Falls; B.S., 1942, Wyoming.

AL J. LINGG, 1969 (1973), Associate Professor of Bacteriology; Associate Bacteriologist; B.S., 1964, M.S., 1966, Ph.D., 1969, Kansas State.

*ALLAN S. LOCHART, 1973, Affiliate Professor of Industrial Education, INEL, Idaho Falls; B.S., 1972, Purdue.

*MABEL LOCKE, 1930-1936, 1947 (1957), Professor Emerita of Physical Education (Head, Department of Physical Education for Women, 1947-1953; Chairman, Physical Education for Women, 1953-1969); B.S., 1929, Northwestern; M.S., 1936, Wisconsin. Emerita since 1971 (now residing in Carmel, California).

GLEN R. LOCKERY, 1947 (1955), Professor of Music (Voice, Choir); B.A., 1940, B.Mus., 1942, Lawrence; M.A., 1947, Columbia.

HOWARD LOEWENSTEIN, 1958 (1968), Professor of Forestry (Soils): B.S., 1952, Colorado State (Ft. Collins); Ph.D., 1955, Wisconsin.

NORMAN R. LOGAN, 1947 (1968), Professor of Music (Voice, Swing Choir, Music Education); B.S., 1947, M.S.Mus.Ed., 1947, Idaho; M.Mus., 1963, Southern California.

RICHARD S. LONG, 1946-1956, 1958, Manager of the University Bookstore, 1966-; B.S.Bus., 1949, Idaho.

ROGER B. LONG, 1966 (1973), Professor of Agricultural Economics; Agricultural Economist; B.S., 1955, M.F., 1959, Ph.D., 1963, Minnesota.

ROBERT P. LOTTMAN, 1966 (1971), Professor of Civil Engineering; B.S.C.E., 1954, Polytechnic Institute of Brooklyn; M.S.C.E., 1956, Purdue; Ph.D., 1965, Ohio State.

*ROBERT R. LOUCKS, 1967 (1976), Associate Extension Professor and Lemhi County Extension Agricultural Agent, Salmon; B.S.Ag., 1965, Idaho.

*J. DAVID LOVE, 1974, Affiliate Professor of Geology, U.S. Geological Survey, Laramie, Wyo.; B.A., 1933, M.A., 1934, Wyoming; Ph.D., 1938, Yale; LL.D., 1961, Wyoming.

*T. E. LUDDEN, 1950, Affiliate Professor of Bacteriology, Deaconess Hospital, Spokane, Wa.; B.A., 1939, Willamette; M.D., 1943, Oregon; M.S., 1948, Minnesota.

*GRANT E. LUNDGREN, 1974, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1958, Brigham Young.

CECELIA E. LUSCHNIG, 1975, Assistant Professor of Foreign Languages and Literatures (Classics); B.A., 1962, City College of New York; M.A., 1963, Ph.D., 1972, Cincinnati.

JAMES C. LUTZKE, 1975, Assistant Extension Professor and Assistant Agricultural Editor, Moscow; B.A., 1964, Michigan; M.S., 1973, Michigan State.

MARGUERITE M. LYNCH, 1975, Assistant Professor of Special Education; B.S., 1959, M.S., 1964, Fort Hays State.

*PAUL J. MACBETH, 1975, Affiliate Professor of Physics, INEL, Idaho Falls; B.S., 1971, M.S., 1973, Brigham Young.

JAMES S. MACDONALD, 1975, Visiting Associate Professor of Law; B.A., 1966, Pomona; J.D., 1969, California (Berkeley).

DOUGLAS MACFARLANE, 1963 (1967), Assistant Professor of Physical Education; B.A.Ed., 1953, Washington; M.Ed., 1958, Oregon State.

*HALL M. MACKLIN, 1935 (1948), Professor of Music and Department Head Emeritus (Head, Department of Music, 1948-1969); B.Mus., 1931, Illinois; M.Mus., 1938, Idaho. Emeritus since 1969 (now residing in Moscow, Idaho).

CRAIG MACPHEE, 1957 (1966), Professor of Fishery Management; B.A., 1947, M.A., 1949, British Columbia; Ph.D., 1954, Washington (Seattle).

GAIL M. MADDOCK, 1972, Affiliate Professor of Education, Moscow; B.A., 1969, California (Santa Barbara); M.S.P.A., 1971, Washington.

JOHN A. MAGEE, JR., 1971 (1974), Assistant Professor of Business; B.S., 1950, U.S. Military Academy; M.B.A., 1958, Harvard; M.F., 1974, Idaho.

*DEAN MAHONEY, 1975, Affiliate Clinical Professor of Medical Science, Lewiston; B.A., 1949, South Idaho College of Education; M.D., 1955, Utah.

FRANCES B. MAIB, 1951 (1959), Professor of Education; Chairman, Elementary Education; B.S., 1935, Central Washington State; M.A., 1943, Ed.D., 1950, Washington (Seattle).

GARY K. MAKI, 1969 (1976), Professor of Electrical Engineering; B.S., 1965, Michigan Technological; M.S., 1968, Ph.D., 1969, Missouri.

DONALD J. MAKUS, 1973, Assistant Professor of Plant Physiology; Assistant Physiologist; B.S., 1965, Delaware Valley; M.S., 1966, Michigan State; Ph.D., 1972, North Carolina State.

*HAROLD E. MALDE, 1971, Affiliate Professor of Geology, U.S. Geological Survey, Boulder, Colo.; A.B., 1947, Willamette.

JAMES S. MALEK, 1968 (1975), Professor of English; Department Chairman, 1973-; B.A., 1963, Earlham; A.M., 1966, Ph.D., 1968, Chicago.

*J. D. MANKIN, 1971 (1973), Associate Extension Professor and Extension Livestock Specialist, Caldwell; B.S., 1949, New Mexico State; M.S., 1951, Colorado State.

PAUL MANN, 1948 (1959), Professor of Electrical Engineering; B.S.E.E., 1938, M.S.E.E., 1951, Idaho; P.E.

*WILLIAM C. MANNSCHRECK, 1975, Affiliate Clinical Professor of Medical Science, Lewiston; B.S., 1949, M.D., 1951, Nebraska.

*BENJAMIN W. MARGUGLIO, 1973, Affiliate Professor of Industrial Education, INEL, Idaho Falls; B.B.A., 1954, M.B.A., 1955, The City College of New York.

*WILLIAM P. MARINEAU, 1975, Affiliate Clinical Professor of Medical Science, Moscow; B.A., 1950, Idaho; M.D., 1953, Northwestern.

*STANLEY A. MARKO, 1973, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1958, Great Falls; M.B.A., 1972, Idaho.

*FRANKIE MARLER, 1974, Extension Instructor and Extension Area Home Economist, Boise; B.S., 1961, Idaho.

GERALD E. MAROUSEK, 1962 (1971), Professor of Agricultural Economics; Agricultural Economist; B.S., 1951, M.S., 1954, South Dakota State; Ph.D., 1960, Oklahoma State.

*ROSS S. MARSDEN, 1973, Affiliate Professor of Information Science, INEL, Idaho Falls; B.S., 1945, Illinois; M.S., 1968, Idaho; M.S., 1970, Washington State.

DON A MARSHALL, 1950 (1953), Professor of Agricultural Economics; Associate Dean and Director of Resident Instruction, College of Agriculture, 1953-; B.S., 1937, M.S., 1938, Oklahoma State; Ph.D., 1947, Cornell.

*NELDON H. MARSHALL, 1967, Affiliate Professor of Mathematics, INEL, Idaho Falls; B.S., 1958, Brigham Young; M.S., 1966, Idaho.

DWAINE J. MARTEN, 1964 (1973), Associate Professor of Physical Education (Health Education); B.S., 1958, Bemidji State; M.S., 1960, Southern Illinois; H.S.D., 1973, Indiana.

*BOYD A. MARTIN, 1938 (1948), Borah Distinguished Professor of Political Science and Dean Emeritus (Dean, College of Letters and Science, 1955-1970; Head, Department of Social Sciences, 1947-1955; Director, Bureau of Public Affairs Research, 1959-1973; Director, Institute of Human Behavior, 1970-1973); B.S., 1936, Idaho; A.M., 1937, Ph.D., 1943, Stanford. Emeritus since 1973 (now residing in Moscow, Idaho).

*JAMES W. MARTIN, 1946, Professor of Agricultural Engineering and Department Head Emeritus (Head, Department of Agricultural Engineering, 1946-1966); B.S.E.E., 1933, B.S.Ag.E., 1937, Kansas State; M.S., 1938, Iowa State; P.E. Emeritus since 1973 (now residing in Moscow, Idaho).

NEIL E. MARTIN, 1966, Affiliate Professor of Forest Pathology, U.S. Forest Service, Moscow; B.S., 1961, Iowa State; M.S., 1963, South Dakota State.

*TRUMAN W. MASSEE, 1973, Affiliate Professor of Soil Science, Snake River Conservation Research Center, U.S. Department of Agriculture, Kimberly; B.S., 1952, M.S., 1953, Oregon State.

MAX H. MASSEY, 1975, Visiting Assistant Professor of English; A.B., 1968, Ph.D., 1974, California (Davis).

*GILBERT MATSEN, 1942 (1971), Extension Professor Emeritus (Extension Agricultural Agent for Gem County, 1942-1945; for Payette County, 1945-1971); B.S.Ag., 1940, Idaho. Emeritus since 1971 (now residing in Payette, Idaho).

BRUCE R. MATTHEWS, 1974, Instructor in Music (French Horn); B.Mus., 1972, Wisconsin; M.Mus., 1974, Idaho.

O. PAUL MATTHEWS, 1975, Visiting Assistant Professor of Geography; B.A., 1969, M.S., 1971, Washington; J.D., 1975, Idaho.

*HENRY F. MAYLAND, 1969, Affiliate Professor of Soil Science, Snake River Conservation Research Center, Kimberly; B.S., 1960, M.S., 1961, Wyoming; Ph.D., 1965, Arizona.

*GUY T. MCALEXANDER, 1930, Extension Professor Emeritus (Extension Agricultural Agent for Benewah County, 1930-1936; for Latah County, 1936-1944; District Extension Agent Supervisor,

1944-1965); B.S., 1928, Colorado A & M. Emeritus since 1965 (now residing in Coolin, Idaho).

*CAROL M. MCCANDLESS, 1955 (1976), Associate Extension Professor and Jefferson County Extension Home Economist, Rigby; B.S., 1955, Utah State.

KATHLEEN W. MCCARTAN, 1975, Affiliate Instructor in Special Education, Moscow; B.A., 1972, Washington State; M.A., 1974, Washington (Seattle).

*JOHN W. MCCASLIN, 1972, Affiliate Professor of Mining Engineering, INEL, Idaho Falls; B.S.Ch.E., 1940, Kansas.

*JOHN A. MCCLURE, 1967, Affiliate Professor of Physics, INEL, Idaho Falls; B.S., 1956, Geneva; M.S., 1957, Rochester; Ph.D., 1962, Virginia Polytechnic.

*DONALD K. MCCOOL, 1974, Affiliate Professor of Agricultural Engineering, Palouse Conservation Field Station, USDA, Pullman, Wa.; B.S.Ag., 1960, B.S.Ag.E., 1960, M.S., 1961, Missouri; Ph.D., 1965, Oklahoma State.

JACK E. MCCROSKEY, 1973, Professor of Animal Science; Head, Department of Animal Industries, 1973-; Animal Scientist; Extension Professor and Extension Animal Scientist; B.S., 1953, M.S., 1959, Ph.D., 1961, Oklahoma State.

WILLIAM B. MCCROSKEY, 1964-1966, 1971 (1974), Associate Professor of Architecture; B.Arch., 1960, Montana State; M.Arch., 1973, Idaho.

MICHAEL E. MCCUDDIN, 1974, Assistant Professor of Naval Science; B.S., 1971, U.S. Naval Academy.

*ROBERT E. MCDOLE, 1969 (1973), Associate Research Professor of Soil Sciences (Soil Management), Aberdeen; B.S., 1952, Oregon State; M.S., 1968, Ph.D., 1969, Idaho.

GERAL I. MCDONALD, 1966, Affiliate Professor of Forest Pathology, U.S. Forest Service, Moscow; B.S., 1963, Ph.D., 1969, Washington State.

RONALD E. MCFARLAND, 1970 (1974), Associate Professor of English; A.A., 1962, Brevard; B.A., 1963, M.A., 1965, Florida State; Ph.D., 1970, Illinois.

*HUGH C. MCKAY, 1951 (1967), Research Professor of Plant Sciences (Crop Management); Superintendent, Tetonia Research and Extension Center; B.A.Ag., 1935, M.S.Ag., 1941, Idaho.

THOMAS A. MCKEAN, 1974, Associate Professor of Zoology; A.B., 1963, Whitman; Ph.D., 1968, Oregon.

MARYANN E. MCKIE, 1956, Instructor in English; B.S., 1950, Southern Idaho; M.A., 1956, Idaho.

WALTER H. MCLEOD, 1972 (1976), Professor of Law; Law Librarian, 1972-; B.S., 1941, New York; J.D., 1962, Wm. Mitchell College of Law; M.L.L., 1972, Washington.

*GALEN M. MCMASTER, 1955 (1972), Research Professor of Agricultural Engineering; Irrigationist, Aberdeen; B.S.Ag.E., 1950, M.S.Ag.E., 1964, Idaho; P.E.

JOHN L. MCMULLEN, 1951 (1967), Associate Professor of Botany; Associate Dean, College of Letters and Science, 1969-; B.Ed., 1934, Eastern Illinois State; M.S., 1948, Ph.D., 1966, Washington State.

*LEWIS M. MCNAY, 1972, Affiliate Professor of Geology, U.S. Bureau of Mines, Spokane, Wa.; B.S., 1963, M.S., 1966, American (Washington, D.C.).

*G. ELBERT MCPROUD, 1940 (1971), Professor of Agricultural Education and Extension Studies and Training Specialist Emeritus (Extension Agricultural Agent for Clearwater County, 1940-1943; for Boundary County, 1943-1945; for Latah County, 1945-1956); B.S., 1934, M.S., 1940, Idaho. Emeritus since 1971 (now residing in Moscow, Idaho).

JOHN R. MCQUESTION, 1975, Assistant Professor of Military Science; B.S., 1960, Florida State; M.S., 1973, Southern California.

RODNEY A. MEAD, 1968 (1976), Professor of Zoology; A.A., 1958, Sierra; A.B., 1960, M.A., 1962, California (Davis); Ph.D., 1966, Montana.

*RANDY P. MECHAM, 1971, Extension Instructor and Extension Manpower Agent for Bear Lake and Caribou Counties, Soda Springs; B.S., 1971, Utah State.

SHIRLEY R. MEDSKER, 1967 (1976), Associate Professor of Home Economics (Textiles-Weaving); B.S.H.Ec., 1958, M.A.H.Ec., 1964, Wayne State (Detroit).

*WALTER F. MEGAHAN, 1972, Affiliate Professor of Agricultural Engineering and Entomology, U.S. Forest Service, Boise; B.S., 1957, M.S., 1960, Syracuse; Ph.D., 1968, Colorado State.

BARBARA R. MELDRUM, 1965 (1973), Professor of English; B.A., 1956, Westmont; M.A., 1957, Ph.D., 1964, Claremont.

ALBERT R. MENARD, JR., 1967, Professor of Law; Dean, College of Law, 1967-; A.B., 1938, Georgia; J.D., 1941, Columbia.

NANCY L. MENDOZA, 1957 (1969), Assistant Professor of Speech; B.A., 1952, Lake Forest; M.S., 1957, Wisconsin; Ph.D., 1973, Washington State.

MARNY S. MENKES, 1974, Instructor in Foreign Languages and Literatures (Classics); B.A., 1969, Brooklyn; M.A., 1970, Johns Hopkins.

*LYN C. MERRICK, 1973, Assistant Extension Professor and Oneida County Extension Agricultural Agent, Malad; B.S., 1969, M.S., 1973, Idaho.

PETER L. MESERVE, 1975, Visiting Assistant Professor of Zoology; B.A., 1967, California (Davis); M.S., 1969, Nebraska (Lincoln); Ph.D., 1972, California (Irvine).

NEIL L. MEYER, 1975, Assistant Extension Professor and Extension Community Resource Development Specialist, Moscow; B.S., 1964, Minnesota; M.S., 1969, Florida; Ph.D., 1974, Wisconsin.

EDGAR L. MICHALSON, 1969 (1974), Professor of Agricultural Economics; Resource Economist; B.S., 1956, Oregon State; M.S., 1959, Ph.D., 1963, Pennsylvania State.

ELINOR L. MICHEL, 1967-1970, 1971, Learning Resource Specialist with rank of Senior Instructor; B.S., 1963, Washington State; M.A., 1966, Arkansas.

DORA H. MIH, 1972, Assistant Social Science Librarian with rank of Assistant Professor; B.A., 1957, National Taiwan; M.L.S., 1959, California (Berkeley).

JUDY JEAN MILBRATH, 1975, Assistant Extension Professor and Food Nutrition Specialist and District I EFNEP Coordinator, Moscow; B.S., 1971, Oregon; M.S., 1975, Iowa.

PAUL L. MILES, 1965 (1974), Associate Professor of Speech; Department Chairman, 1972-; B.S., 1962, Brigham Young; M.A., 1964, Arizona; Ed.D., 1971, Idaho.

*JOHN C. MILLER, 1970 (1973), Associate Extension Professor and Extension Meats Specialist, Caldwell; B.S., 1962, Texas Technological; M.S., 1964, Missouri; Ph.D., 1968, Pennsylvania State.

*JOHN J. MILLER, 1952, Professor and Chairman of Physics Emeritus; B.A., 1924, M.A., 1927, Ph.D., 1936, Texas. Emeritus since 1967 (now residing in Burnet, Texas).

LAURA J. MILLER, 1970 (1973), Assistant Professor of Home Economics; B.A., 1950, Washington State; M.A.T.H.Ec., 1973, Idaho.

MAYNARD M. MILLER, 1975, Professor of Geology; Dean, College of Mines, 1975-; Chief, Idaho Bureau of Mines and

Geology; Director, Idaho Mining Research Bureau; B.S., 1943, Harvard; M.A., 1948, Columbia; Ph.D., 1956, Cambridge.

RAYMOND J. MILLER, 1973, Professor of Soil Sciences; Associate Dean, College of Agriculture; Director, Agricultural Experiment Station; B.S., 1957, Alberta; M.S., 1960, Washington State; Ph.D., 1962, Purdue.

*RICHARD L. MILLER, 1969, Affiliate Professor of Metallurgy, INEL, Idaho Falls; B.A., 1957, M.S., 1960, Arizona State; Ph.D., 1968, Utah.

*WILLIAM D. MILLER, 1954, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1940, Brigham Young; M.S., 1949, California (Berkeley).

JAMES H. MILLIGAN, 1972 (1975), Associate Professor of Civil Engineering; B.S., 1963, Ph.D., 1969, Utah State.

*EDWARD F. MINK, 1957 (1971), Associate Extension Professor and Idaho County Extension Agricultural Agent, Grangeville; B.S.Ag., 1956, Idaho.

JOHN E. MITCHELL, 1974, Assistant Professor of Range Resources; B.S., 1963, Washington State; M.S., 1965, Utah State; Ph.D., 1973, Colorado State.

WALTER L. MODEN, JR., 1957 (1975), Professor of Agricultural Engineering; Agricultural Engineer; B.A.Ag.E., 1957, Kansas State; M.S.Ag.E., 1961, Idaho; P.E.

PHILIP J. MOHAN, 1971 (1973), Associate Professor of Psychology; B.A., 1957, Redlands; M.A., 1961, Los Angeles State; Ph.D., 1967, Claremont.

MYRON P. MOLNAU, 1969 (1973), Associate Professor of Agricultural Engineering; Associate Agricultural Engineer; B.Ag.E., 1961, M.S., 1963, Minnesota; Ph.D., 1969, Iowa State; P.E.

*BEVERLY W. MONTGOMERY, 1969 (1971), Assistant Extension Professor and Canyon County Extension Home Economist, Caldwell; B.S.H.Ec., 1964, Idaho.

VICTOR E. MONTGOMERY, 1963 (1966), Professor of Psychology; Department Chairman, 1965-1975; A.B., 1948, Duke; M.S., 1949, Washington State; Ph.D., 1952, Northwestern.

JOHN E. MONTOURE, 1961 (1968), Associate Professor of Food Science; Associate Food Scientist (Head, Department of Food Science, 1971-1973); B.S., 1954, M.S., 1955, Wisconsin; Ph.D., 1961, Washington State.

MICHAEL W. MOODY, 1972 (1976), Associate Professor of Foreign Languages and Literatures (Spanish); B.A., 1962, M.A., 1966, Ph.D., 1969, Washington (Seattle).

*CLARENCE A. MOORE, 1966, Affiliate Professor of Civil Engineering, INEL, Idaho Falls, BS, 1954, M.S., 1960, Texas Technological.

MICHAEL C. MOORE, 1975, Visiting Lecturer in Law; B.A., 1964, Dartmouth; J.D., 1968, Idaho.

*WILLIAM C. MOORE, 1930-1946, 1964 (1971), Professor Emeritus of Insurance and Finance; B.S., 1930, M.A, 1936, Idaho. Emeritus since 1973 (now residing in Moscow, Idaho).

DAVID L. MORELAND, 1971 (1973), Assistant Professor of Art; B.A., 1968, Iowa; M.A., 1970, M.F.A., 1971, Wisconsin.

*CHARLES KAY MORGAN, 1975, Extension Instructor and Extension Agricultural Agent, Idaho Falls; B.S., 1973, Idaho.

BERNICE M. MORIN, 1944, Director of Food Services; B.S., 1941, Montana.

JAMES D. MORRIS, 1965 (1972), Associate Professor of Guidance and Counseling; Counseling Psychologist; B.S.Ed., 1962, M.S.Ed., 1963, Idaho; Ed.D., 1970, Indiana.

JOHN S. MORRIS, 1973 (1975), Assistant Professor of Native American Affairs; B.S., 1970, M.B.A., 1971, Rochester.

*GLEN A. MORTENSEN, 1963, Affiliate Professor of Nuclear Engineering, INEL, Idaho Falls; B.S.Ch.E., 1955, Idaho; Ph.D., 1963, California (Berkeley).

*DOUGLAS M. MORTON, 1972, Affiliate Professor of Geology, Department of Geology, University of California at Riverside; A.B., 1958, California (Riverside); Ph.D., 1966, California (Los Angeles).

ALI A. MOSLEMI, 1975, Professor of Forest Products; Associate Dean for Research, College of Forestry, Wildlife and Range Sciences, 1975-; Associate Director, Forest, Wildlife and Range Experiment Station; B.S., 1957, Tehran; M.S., 1960, Ph.D., 1964, Michigan State.

*R. JOHN MOSS, 1954 (1971), Extension Professor and Bonneville County Extension Agricultural Agent, Idaho Falls; B.S., 1950, Utah State.

*RONALD WARREN MOSS, 1976, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1969, Brigham Young; M.S., 1974, Utah State.

AUTTIS M. MULLINS, 1970, Professor of Animal Science; Dean, College of Agriculture, 1972- (Head, Department of Animal Industries, 1970-1972); B.S., 1953, M.S., 1954, Kentucky; Ph.D., 1957, Missouri.

PAUL MUNETA, 1959 (1968), Associate Professor of Food Science; Associate Food Scientist; B.S., 1953, Montana State; Ph.D., 1959, Cornell.

R. PATRICK MURPHY, 1971, Assistant Professor of English; B.A., 1963, Yale; M.A., 1968, Ph.D., 1971, Virginia.

GLEN A. MURRAY, 1967 (1976), Professor of Agronomy; Crop Physiologist; B.S., 1962, M.S., 1963, Montana State; Ph.D., 1967, Arizona.

MARILYN K. MURRAY, 1974, Assistant Professor of Guidance and Counseling; Counselor, Student Counseling Center; B.A., 1971, M.Ed., 1972, Ed.D., 1974, Montana State.

*ALBERT MYLROIE, 1944 (1968), Extension Professor Emeritus (Extension Agricultural Agent for Twin Falls County, 1944-1946; for Bannock County, 1948-1968); B.S.Ag., 1934, Wyoming. Emeritus since 1968 (now residing in Pocatello, Idaho).

*ROBERT E. NARUM, 1968, Affiliate Professor of Mathematics, INEL, Idaho Falls; B.A., 1963, M.A., 1966, Colorado.

RICHARD J. NASKALI, 1967, Assistant Professor of Botany; B.Sc., 1957, M.S., 1961, Ph.D., 1969, Ohio State.

DENNY V. NAYLOR, 1966 (1973), Associate Professor of Soil Sciences (Soil Chemistry); Associate Soil Scientist; B.S., 1959, M.S., 1961, Idaho; Ph.D., 1966, California (Berkeley).

*MARJORIE M. NEELY, 1957, Dean of Women Emerita (Dean of Women, 1957-1971); B.A., 1948, Eastern Washington State; M.S., 1950, Ohio. Emerita since 1971 (now residing in Lewiston, Idaho).

RICHARD S. NEHER, 1974, Associate Professor of Music (Piano); B.Mus., 1954, Northwestern; M.Mus., 1961, D.Mus., 1975, Indiana.

*RALPH T. NELSEN, 1972, Affiliate Professor of Education, Portland, Ore., Public Schools; B.S., 1956, Oklahoma A & M; M.S., 1968, Portland State; Ed.D., 1972, Idaho.

CHARLES K. NELSON, 1969 (1974), Associate Professor of General Engineering; B.S., 1965, M.Ed., 1968, Idaho.

*KARL E. NELSON, 1970, Affiliate Professor of Food Science, Young's Dairy Products Co., Twin Falls; B.S.Ag., 1966, M.S., 1968, Idaho.

MILO G. NELSON, 1970 (1975), Humanities Librarian with rank of

Associate Professor; B.A., 1960, Drake; M.A., 1967, M.L.S., 1970, Wisconsin.

WILLIAM D. NESSE, 1975, Assistant Professor of Geology; B.S., 1969, Washington State.

LEON F. NEUENSCHWANDER, 1976, Assistant Professor of Forest Resources; A.A., 1969, Victor Valley; B.A., 1970, California State College (Los Angeles); M.A., 1972, California State University (Los Angeles); Ph.D., 1975, Texas Tech.

RALPH J. NEUHAUS, 1967 (1976), Associate Professor of Mathematics; B.A., 1961, St. Ambrose; M.S., 1963, Ph.D., 1967, Iowa.

FLOYD L. NEWBY, 1974, Professor of Wildland Recreation; Director, Wilderness Research Center; B.S., 1964, Utah State; M.S., 1966, Ph.D., 1971, Michigan.

SHIRLEY A. NEWCOMB, 1949 (1972), Professor of Home Economics (Food-Nutrition); B.S.H.Ec., 1944, Nebraska; M.S., 1951, Idaho.

*JEROME J. NEY, 1968 (1976), Associate Extension Professor and Nez Perce County Extension Agricultural Agent, Lewiston; B.S.Ag., 1965, M.S., 1966, Idaho.

MARY C. NICOLSON, 1974, Catalog Librarian with rank of Instructor; B.A., 1972, Colorado State; M.L.S., 1974, Indiana.

*ELSINE NIELSEN, 1942 (1967), Professor Emerita of Home Economics; B.S., 1926, Utah State; M.S., 1931, Iowa State. Emerita since 1967 (now residing in Moscow, Idaho).

RALPH NIELSEN, 1964 (1976), Catalog Librarian with rank of Associate Professor; B.A., 1954, Alberta; B.L.S., 1958, Toronto.

*CHARLES NOBLE, 1966, Affiliate Professor of Mathematics, INEL, Idaho Falls; B.A., 1961, M.A., 1965, New Mexico.

*MARY N. NORDLUND, 1955 (1971), Extension Professor and Bingham County Extension Home Economist, Blackfoot; B.S., 1942, Brigham Young.

JOHN T. NORGORD, 1948 (1959), Associate Professor of Mechanical Engineering; B.S., 1948, Washington; M.S.E., 1951, Michigan; P.E.

LYNN C. NORRIS, 1974, Catalog Librarian with rank of Instructor; B.A., 1972, Pacific (Stockton, Ca.); M.L.S., 1974, Oregon.

*CYRIL V. NOVAK, 1975, Affiliate Clinical Professor of Medical Science, Lewiston; B.A., 1966, California (Berkeley); M.S., 1969, California (San Francisco).

*RONALD J. NULL, 1974, Affiliate Professor of Environmental Health Sciences, INEL, Idaho Falls; B.A., 1964, California (Riverside); M.A., 1970, California (Hayward); Ph.D., 1974, California (Berkeley).

*A. NORMAN NYBROTEN, 1939-1948, 1958 (1958), Professor Emeritus of Economics (Associate Director, Bureau of Business and Economic Research, 1958-1972); B.Ed., 1935, Wisconsin State (Plattville); Ph.D., 1941, Wisconsin. Emeritus since 1972 (now residing in Moscow, Idaho).

*ESTER A. NYSTROM, 1944 (1969), Extension Professor Emerita (Extension Home Economist for North District, 1944-1946; for Latah County, 1946-1949; Clothing Specialist, 1949-1969); B.A.H.Ec., 1930, Washington State. Emerita since 1969 (now residing in Boise, Idaho).

*CARL F. OBENCHAIN, 1965, Affiliate Professor of Chemical Engineering, INEL, Idaho Falls; B.S., 1958, Oregon State; M.S., 1961, Ph.D., 1964, Michigan.

*RICHARD E. OHMS, 1957 (1973), Extension Professor and Extension Potato Specialist, Twin Falls; B.S.Ag., 1950, M.S.Ag., 1952, Idaho; Ph.D., 1955, Illinois.

LAWRENCE E. O'KEEFFE, 1965 (1973), Associate Professor of Entomology; Associate Entomologist; B.S., 1956, M.S., 1958, North Dakota State; Ph.D., 1965, Iowa State.

LEILA S. OLD, 1967 (1975), Professor of Home Economics (Clothing); Ed.B., 1937, California (Los Angeles); B.S., 1941, Oregon State; M.A., 1942, Southern California; Ed.D., 1964, Washington State.

*ELLA L. OLESEN, 1920, Registrar Emerita. Emerita since 1944 (now residing in Moscow, Idaho).

*CHARLES S. OLSEN, 1973, Affiliate Professor of Metallurgy, INEL, Idaho Falls; B.S., 1961, Ph.D., 1967, Utah.

DAVID P. OLSON, 1975, Associate Professor of Veterinary Science, Associate Veterinary Pathologist and Extension Veterinarian; B.S., 1958, D.V.M., 1960, Minnesota (St. Paul); M.S., 1972, Ph.D., 1975, Michigan State.

*L. NEIL OLSON, 1971 (1975), Assistant Extension Professor and Valley County Extension Agricultural Agent, Donnelly; B.S., 1960, California State Polytechnic.

NORMAN C. OLSON, 1971, Professor of Management; Dean, College of Business and Economics, 1971-1976; B.S., 1947, M.S., 1949, Ph.D., 1959, Wisconsin.

*NORMAN J. OLSON, 1972, Affiliate Professor of Metallurgy, INEL, Idaho Falls; B.S., 1964, M.S., 1965, Washington; Ph.D., 1970, Iowa State.

PHILIP D. OLSON, 1973, Assistant Professor of Business; B.A., 1965, Concordia (Minn.); M.B.A., 1967, Montana; Ph.D., 1972, Oregon.

*ROBERT L. OLSON, 1975, Affiliate Clinical Professor of Medical Science, Lewiston; B.S., 1952, Bethany College; M.D., 1956, Kansas.

KURT O. OLSSON, 1974 (1976), Associate Professor of English; B.A., 1962, North Park; M.A., 1963, Columbia; Ph.D., 1968, Chicago.

JANICE S. ONUSKA, 1971 (1972), Assistant Professor of Physical Education; Teacher's Certificate, 1962, London; B.S., 1970, M.S., 1971, Oregon.

JANICE E. ORLANSKY, 1976, Acting Instructor of Special Education; B.A., 1968, Dalhousie; M.Ed., 1970, Smith; Diploma, 1970, Clark School for the Deaf.

*JOHN P. ORR, 1975, Affiliate Professor of Business, INEL, Idaho Falls; B.S.Bus., 1968, M.B.A., 1973, Idaho.

*H. ROBERT OTNESS, 1950 (1959), Professor Emeritus of Psychology; B.S., 1931, M.S.Ed., 1932, Idaho; Ph.D., 1939, New York. Emeritus since 1971 (now residing in Moscow, Idaho).

GLENN B. OWEN, 1964, Director of Institutional Services, 1970-; B.S., 1936, Idaho; M.B.A., 1954, Pennsylvania (Wharton School of Finance and Commerce).

GLENN B. OWEN, JR., 1974, Assistant Professor of Real Estate; B.S., 1969, M.B.A., 1973, Idaho.

*EDWARD W. OWENS, 1955, Research Professor of Plant Sciences (Crop Management); Assistant Director, Agricultural Experiment Station; Superintendent, Aberdeen Research and Extension Center; B.S.Ag., 1949, M.S.Ag., 1951, Idaho; Ph.D., 1954, Cornell.

WARREN S. OWENS, 1968 (1969), Dean, Instructional Services, 1970-; Director of Libraries with rank of Professor; B.A., 1943, Kalamazoo; M.A., 1949, Chicago; M.A.L.S., 1953, Michigan.

LOIS W. PACE, 1972, Associate Extension Professor and Expanded Nutrition Program Specialist, Moscow; B.S., 1950, Missouri; M.Ed., 1966, Colorado State.

*HOWARD E. PACKENHAM, 1931 (1964), Professor Emeritus of English; B.A., 1920, College of Idaho; M.A., 1933, Idaho. Emeritus since 1964 (now residing in Nanaimo, B.C., Canada).

*CHARLES G. PAINTER, 1954 (1975), Extension Professor; Ex-

tension Soil Specialist, Twin Falls; B.S., 1947, Colorado State; M.S., 1948, Michigan State.

RAYMOND F. PALOUTZIAN, 1973, Assistant Professor of Psychology; B.A., 1968, California State (Los Angeles); M.A., 1970, Ph.D., 1972, Claremont Graduate School.

*KENNETH M. PAPENFUSS, 1970, Affiliate Professor of Business, INEL, Idaho Falls; B.A., 1955, M.Ed., 1959, Montana.

*CLEM H. PARBERRY, 1953 (1975), Professor Emeritus of Physical Education (Administration); B.S.Ed., 1935, Pacific; M.S.Ed., 1957, Idaho. Emeritus since 1975 (now residing in Moscow, Idaho).

WILLIAM R. PARISH, 1947 (1964), Professor of Electrical Engineering; Acting Director, Engineering Continuing Education, 1975-; Chairman, Faculty Council, 1970-1972; B.S.E.E., 1944, Iowa State; M.S.E.E., 1952, Idaho.

CHARLES A. PARK, 1975, Lecturer in Business Finance; B.A., 1973, M.B.A., 1975, Washington State.

*ROBERT T. PARKER, 1973, Affiliate Professor of Industrial Education, INEL, Idaho Falls; B.S.M.E., 1965, Washington.

A. LEE PARKS, 1975, Associate Professor of Special Education; B.A., 1964, M.Ed., 1966, Central Washington State; Ph.D., 1972, Kansas.

WILLIAM H. PARKS, 1972, Associate Professor of Finance; B.A., 1957, M.A., 1960, Ph.D., 1967, Michigan State.

*JOAN K. PARR, 1971 (1975), Assistant Extension Professor and Cassia County Extension Home Economist, Burley; B.S.H.Ec., 1968, California State Polytechnic (San Luis Obispo).

ROBERT R. PARTON, 1967, Director of Housing, 1967-; B.A., 1951, Denver.

*ALDEN R. PARTRIDGE, 1975, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1959, B.A., 1960, Wyoming; M.A., 1964, Northern Iowa.

ARTHUR D. PARTRIDGE, 1960 (1969), Professor of Forestry (Pathology); B.S., 1953, Maine; M.S., 1956, Ph.D., 1957, New Hampshire.

GEORGE PATSAKOS, 1970 (1976), Associate Professor of Physics; A.B., 1962, Columbia; Ph.D., 1969, Stanford.

RONALD G. PATTERSON, 1974 (1975), Instructor in Engineering Science and Mechanical Engineering; B.S., 1970, Gonzaga; M.S., 1971, California State Polytechnic.

*JOSEPH J. PAVEK, 1965, Affiliate Professor of Plant Sciences (Plant Genetics), U.S. Department of Agriculture, Aberdeen; B.S., 1955, M.S., 1960, Minnesota; Ph.D., 1965, Wisconsin.

EDSON R. PECK, 1962, Professor of Physics; B.A., 1936, M.S., 1937, Northwestern; Ph.D., 1945, Chicago.

*STEPHEN L. PEEBLES, 1960 (1974), Associate Extension Professor and Area Extension Livestock Agent for Fremont and Madison Counties, St. Anthony; B.S.Ag., 1955, Idaho.

JAMES M. PEEK, 1973, Associate Professor of Wildlife Management; B.S., 1958, M.S., 1961, Montana State; Ph.D., 1971, Minnesota.

*GEORGE R. PESHO, 1974, Affiliate Professor of Entomology, Pullman, Wa.; B.S., 1952, Colorado State; M.S., 1954, Kansas State; Ph.D., 1969, Iowa State.

JOHN L. PETERMAN, 1973, Assistant Professor of Trade and Industry; B.S.Ed., 1966, Colorado State; M.S., 1968, Pennsylvania State.

CHARLIE F. PETERSEN, 1943 (1957), Professor of Poultry Science; Poultry Scientist (Head, Department of Poultry Science, 1961-1970); B.S.Ag., 1940, M.S.Ag., 1946, Idaho.

*DAYLENE R. PETERSEN, 1971-1973, 1974 (1974), Assistant Extension Professor and Canyon County Extension Home Economist, Caldwell; B.A.H.Ec.Ed., 1971, Northwest Nazarene.

ALBERT JON PETERSON, 1975, Visiting Associate Professor of Architecture; B.S., 1957, B.Arch., 1962, Oregon.

CHARLES L. PETERSON, 1973, Associate Professor of Agricultural Engineering; Associate Agricultural Engineer; B.S.Ag.E., 1961, M.S.Ag.E., 1965, Idaho; Ph.D., 1973, Washington State.

*DORAN A. PETERSON, 1959 (1971), Associate Extension Professor and Ada County Extension Agricultural Agent, Boise; B.S.Ag., 1940, Idaho.

FLOYD H. PETERSON, 1969, Professor of Music (History and Literature); Director, School of Music, 1969-; B.Mus., 1952, M.Mus., 1953, Northwestern; Mus.Ed.D., 1963, Indiana.

HAZEL C. PETERSON, 1971, Associate Professor of Physical Education; B.S., 1949, M.S., 1955, Oregon; Ph.D., 1968, Ohio State.

JAMES N. PETERSON, 1975, Visiting Assistant Professor of Electrical Engineering; B.S., 1965, M.S., 1967, Idaho.

PHILIP E. PETERSON, 1952 (1961), Professor of Law (Dean, College of Law, 1962-1966); B.S., 1950, J.D., 1952, Illinois; LL.M., 1958, Harvard.

STEVEN R. PETERSON, 1974, Assistant Professor of Wildlife Resources; B.S., 1964, Colorado State; M.S., 1969, Utah State.

CARL J. PETRICK, 1974, Visiting Instructor in Theatre Arts; Affiliate Professor of Dance and Physical Education, Moscow; B.A., 1971, Idaho.

BARBARA B. PETURA, 1975, Acting Assistant Professor of Journalism; B.A., 1965, Lawrence (Wisconsin).

HENRIETTA GILMOUR PEW, 1975, Assistant Law Librarian with rank of Instructor; B.A., 1971, Muskingum; M.S.L.S., 1972, Case-Western Reserve.

FRANKLIN H. PITKIN, 1939 (1972), Professor of Forestry (Reforestation); Nursery Superintendent; B.S.For., 1939, M.F., 1958, Idaho.

T. ALAN PLACE, 1970 (1975), Professor of Mechanical Engineering; B.Sc., 1961, Nottingham (England); M.Eng., 1966, McMaster (Ontario); Ph.D., 1969, British Columbia.

*PEGGY PLETCHER, 1968 (1976), Associate Extension Professor and Ada County Extension Home Economist, Boise; B.S.H.Ec., 1953, Baylor.

*STEPHEN R. POE, 1975, Assistant Extension Professor and Minidoka County Extension Agricultural Agent, Rupert; B.S., 1962, Florida State; M.S., 1974, California State (Chico).

WARREN K. POPE, 1947 (1962), Research Professor of Plant Sciences (Plant Genetics); B.S., 1940, Ph.D., 1948, California (Berkeley).

GLEN H. PORTER, 1968 (1974), Professor of Physical Education (Biodynamics); B.S., 1962, Idaho; M.S., 1965, Illinois; Ph.D., 1968, Wisconsin.

RICHARD A. PORTER, 1962 (1971), Associate Professor of Chemistry; B.S., 1954, Northwestern; Ph.D., 1959, California (Los Angeles).

*ROLAND W. PORTMAN, 1949 (1971), Extension Professor and Extension Entomologist Emeritus; B.S., 1937, Colorado State; M.S., 1940, Kansas State. Emeritus since 1973 (now residing in Moscow, Idaho).

CLAPENCE J. POTRATZ, 1966 (1972), Associate Professor of Mathematics; B.A., 1957, Pacific Lutheran; M.S., 1959, Idaho; Ph.D., 1966, Washington State.

GRETCHEN L. POTTER, 1966 (1972), Associate Professor of Home Economics (Art-Home Furnishings); B.S.H.Ec., 1939, Idaho; M.A.T., 1966, Washington State.

*J. DAN POWELL, 1970 (1974), Affiliate Professor of Geology, U.S. Geological Survey, Denver; B.S., 1956, M.S., 1958, Texas Technological; Ph.D., 1961, Texas.

*DONALD A. PRICE, 1970, Affiliate Professor of Animal Science, U.S. Sheep Experiment Station, U.S. Department of Agriculture, Dubois; B.S., 1947, Kansas State; M.S., 1949, Colorado State; Ph.D., 1957, Oregon State.

*WILMER G. PRIEST, 1946 (1974), Extension Professor Emeritus (4-H Club Agent, Twin Falls, 1946-1948; Extension Agricultural Agent for Minidoka County, 1948-1960; for Jerome County, 1960-1974); B.S.Ag., 1946, Idaho. Emeritus since 1974 (now residing in Jerome, Idaho).

*G. RAYMOND PRIGGE, 1975, Assistant Extension Professor and Extension Farm Management Specialist; B.S., 1962, M.S., 1964, Kentucky; Ph.D., 1970, Ohio State.

KEITH A. PRISBREY, 1976, Assistant Professor of Metallurgy; B.S., 1969, Utah; M.S., 1970, Stanford; Ph.D., 1975, Utah.

ROBERT C. PROBASCO, 1968 (1975), Associate Professor of Music (Oboe, Literature, Theory); B.Mus., 1966, Michigan; M.Mus., 1968, Nebraska.

RAYMOND L. PROCTOR, 1965 (1976), Professor of History (European History); B.S., 1960, Maryland; M.A., 1962, Ph.D., 1966, Oregon.

*STEPHEN R. PULLEY, 1970, Affiliate Professor of Accounting, INEL, Idaho Falls; B.S., 1968, M.S., 1969, Utah State.

JAN M. PYLE, 1972, Catalog Librarian with rank of Assistant Professor; B.S., 1956, Lewis and Clark; M.A.L.S., 1966, Washington.

FRED W. RABE, 1965 (1972), Associate Professor of Zoology; B.S., 1950, M.S., 1955, Colorado State; Ph.D., 1963, Utah.

DALE R. RALSTON, 1970, Assistant Professor of Hydrogeology; Hydrogeologist; B.S.C.E., 1964, Oregon State; M.S.Hydrogeol., 1967, Arizona.

CHARLES A. RAMSEY, II, 1975, Coordinator of Minority Student Programs; B.A., 1958, M.A., 1967, North Carolina Central.

*DALE M. RASMUSON, 1974, Affiliate Professor of Information Science, INEL, Idaho Falls; B.A., 1965, M.S., 1968, Utah State; Ph.D., 1973, Colorado State.

*WARREN W. RASMUSSEN, 1973, Affiliate Professor of Soil Science, Snake River Conservation Research Center, U.S. Department of Agriculture, Kimberly; B.S., 1948, M.S., 1953, Utah State.

*ARTHUR C. RATHBURN, 1973, Assistant Extension Professor and Area Extension Community Resource Development Specialist, Twin Falls; B.A., 1970, California State; M.A., 1971, Oregon State.

ELMER K. RAUNIO, 1949 (1961), Professor of Chemistry; Dean, College of Letters and Science, 1970-; B.S., 1940, Wyoming; M.S., 1942, North Dakota State; Ph.D., 1949, Michigan.

*WALTER J. RAWLS, 1973, Affiliate Professor of Civil Engineering, Northwest Watershed Research Center, Boise; B.S.C.E., 1966, M.S.C.E., 1968, Virginia Polytechnic.

PAUL W. REA, 1975, Assistant Professor of Military Science; B.S., 1959, Mississippi State; M.S., 1975, Washington State.

JAMES R. REECE, 1970 (1975), Assistant Professor of Foreign Languages and Literatures (German); B.A., 1966, Pacific Lutheran; M.A., 1968, Ph.D., 1975, Oregon.

EUGENE E. REED, 1960 (1964), Professor of Foreign Languages and Literatures (German); B.A., 1947, Texas Christian; M.A., 1950, Ph.D., 1953, Texas.

*L. EUGENE REESE, 1961, Affiliate Professor of Mathematics, INEL, Idaho Falls; B.S., 1959, Idaho State; M.S., 1961, Brigham Young.

GERALD E. REHFELDT, 1967, Affiliate Professor of Forest Genetics, U.S. Forest Service, Moscow; B.S., 1963, Utah State; M.S., 1965, Ph.D., 1967, Wisconsin.

ROLLAND R. REID, 1955 (1965), Professor of Geology (Dean, College of Mines, 1965-1974); B.S., 1951, M.S., 1953, Ph.D., 1959, Washington (Seattle).

*CHARLES L. RENBERG, 1954 (1971), Associate Extension Professor and Bingham County Extension Agricultural Agent, Blackfoot; B.S.Ag., 1952, M.S.Ag., 1954, Idaho.

MALCOLM M. RENFREW, 1959, Professor of Chemistry (Department Head, 1967-1973); B.S., 1932, M.S., 1934, Idaho; Ph.D., 1938, Minnesota.

HARLAND W. RENSHAW, 1974, Assistant Professor of Microbiology; Assistant Microbiologist; B.S., 1965, D.V.M., 1967, Michigan State; M.S., 1970, Wisconsin; Ph.D., 1974, Washington State.

*VILLA R. REXFORD, 1962-1964, 1965 (1974), Associate Extension Professor and Gem County Extension Home Economist, Emmett; B.S., 1962, M.S., 1968, Oregon State.

GERALD R. REYNOLDS, 1971, Controller; B.S., 1961, Idaho; C.P.A.

*THOMAS R. RHODES, 1972, Affiliate Professor of Business, INEL, Idaho Falls; M.S., 1968, Wyoming.

CHARLES W. RICE, JR., 1965, Manager of User Services, Computer Services, 1971-; B.S., 1962, Illinois Institute of Technology; M.S., 1963, Bucknell; C.D.P.

DAVID G. RICE, 1969 (1974), Associate Professor of Anthropology; B.A., 1965, Washington; M.A., 1967, Ph.D., 1972, Washington State.

*RAYMOND M. RICE, 1975, Affiliate Professor of Geology, Pacific Southwest Forest and Range Experiment Station, Arcata, Ca.; B.S., 1951, Montana; M.S., 1961, California (Berkeley); Ph.D., 1970, Colorado State.

THOMAS E. RICHARDSON, 1972, Associate Professor of Education (Higher Education); Vice President for Student and Administrative Services, 1972-; B.S., 1962, Montana State; M.Mus., 1964, Indiana; Ph.D., 1968, Florida State.

*KENT D. RICHERT, 1970, Affiliate Professor of Mathematics, INEL, Idaho Falls; B.S., 1959, M.S., 1962, Kansas.

JACK R. RIDLEY, 1966 (1972), Associate Professor of Native American Affairs; Director, Center for Native American Development, 1972-; B.S., 1961, M.S., 1963, Nevada; Ph.D., 1966, California (Davis).

ANTHONY L. RIGAS, 1966 (1973), Professor of Electrical Engineering; Director, Engineering Continuing Education; Chairman, Faculty Council, 1974-1975; B.S.E.E., 1958, M.S.E.E., 1962, Kansas.

ROBERT E. RINKER, 1975, Instructor in General Engineering; B.S., 1974, Idaho.

*MARGARET RITCHIE, 1938, Professor Emerita of Home Economics; B.S., 1918, M.A., 1930, Columbia. Emerita since 1966 (now residing in Moscow, Idaho).

ROBERT C. RITTER, 1974, Assistant Professor of Veterinary Science; B.S., 1967, Valparaiso; V.M.D., 1971, Ph.D., 1973, Pennsylvania.

*SUE W. RITTER, 1975, Affiliate Professor of Veterinary Medicine,

Washington State University, Pullman, Wa.; B.A., 1968, Valparaiso; M.A., 1971, Ph.D., 1973, Bryn Mawr.

*CHARLES W. ROBBINS, 1973, Affiliate Professor of Soil Science, Snake River Conservation Center, U.S. Department of Agriculture, Kimberly; B.S., 1966, Brigham Young; M.S., 1971, Utah State.

HOWARD A. ROBBINS, 1969, Instructor in Music (Percussion); B.A., 1963, Whitworth.

GEORGE H. ROBERTS, 1957 (1969), Professor of Art; Chairman, Art; B.S., 1954, M.S., 1955, Wisconsin.

*JOHN D. ROBERTS, 1943 (1971), Extension Professor and Franklin County Extension Agricultural Agent, Preston; B.S.Ag., 1939, Idaho.

LORIN W. ROBERTS, 1957 (1967), Professor of Botany; B.S., 1948, M.A., 1950, Ph.D., 1952, Missouri.

*ALAN C. ROBERTSON, 1973, Affiliate Professor of Civil Engineering, Idaho Water Resource Board, Boise; B.S.Ag.E., 1958, M.S.Ag.E., 1960, Idaho.

SIEGFRIED B. ROLLAND, 1952 (1964), Professor of Social Sciences and History (American History); Chairman, Faculty Council, 1973-1974; B.A., 1941, M.A., 1947, Wayne State (Detroit); Ph.D., 1952, Wisconsin.

*R. ROBERT ROMANKO, 1957 (1968), Associate Research Professor of Plant Sciences (Plant Pathology), Parma; B.S., 1953, New Hampshire; M.S., 1955, Delaware; Ph.D., 1957, Louisiana State.

ALAN ROSE, 1969 (1975), Assistant Professor of Foreign Languages and Literatures (French); B.A., 1968, University of the South; Ph.D., 1975, Lancaster.

RICHARD H. ROSS, 1947 (1953), Professor of Dairy Science; Dairy Scientist (Head, Department of Dairy Science, 1960-1970); B.S., 1938, Pennsylvania State; M.S., 1940, West Virginia; Ph.D., 1947, Pennsylvania State.

ARTHUR W. ROURKE, 1972 (1976), Associate Professor of Zoology; A.B., 1964, Lafayette, Ph.D., 1970, Connecticut.

ALWYN R. ROUYER, 1970 (1975), Associate Professor of Political Science; B.A., 1963, Southwestern Louisiana; M.A., 1966, Georgetown; Ph.D., 1971, Tulane.

CORINNE M. ROWE, 1973, Assistant Extension Professor and Extension 4-H Specialist (Urban Programs), Moscow; B.A., 1960, Washington State; M.Ed., 1973, Idaho.

GALEN O. ROWE, 1971 (1976), Professor of Foreign Languages and Literatures (Classics); Department Chairman, 1973-; B.A., 1959, David Lipscomb; Ph.D., 1963, Vanderbilt.

WILLIAM D. ROYALTY, 1969 (1976), Associate Professor of Mathematics; B.A., 1959, M.S., 1964, Ph.D., 1969, Iowa.

*HOWARD B. ROYLANCE, 1950 (1974), Extension Professor and Extension Agronomist Emeritus; B.S.Ag., 1938, M.S.Ag., 1940, Idaho. Emeritus since 1975 (now residing in Boise, Idaho).

GEORGE M. RUBOTTOM, 1975, Associate Professor of Chemistry; A.B., 1962, Middlebury; Ph.D., 1966, Massachusetts Institute of Technology.

JEAN C. RUDOLPH, 1969, Instructor in Office Administration; B.S.Bus., 1942, M.S.Bus.Ed., 1953, Idaho.

GEORGE R. RUSSELL, 1947 (1966), Professor of Civil Engineering; Assistant Dean, College of Engineering, 1967-; B.S.C.E., 1943, C.E., 1960, Idaho; P.E.

*SHEILA D. RYAN, 1972 (1976), Assistant Extension Professor and Ada County Extension Home Economist, Boise; B.S., 1970, Whitworth.

RONALD L. SACK, 1970 (1974), Professor of Civil Engineering; B.S., 1957, M.S.C.E., 1958, Ph.D., 1964, Minnesota.

*MERLE R. SAMSON, 1946-1952, 1954 (1975), Extension Professor and Canyon County Extension Agricultural Chairman and Agent, Caldwell; B.S.Ag., 1941, Idaho.

EVERETT V. SAMUELSON, 1963, Professor of Education; Dean, College of Education, 1963-; Director, Bureau of Educational Research and Service; B.A., 1948, Southwestern (Kansas); M.S., 1951, Kansas State; Ed.D., 1958, Kansas.

KENNETH D. SANDERS, 1975, Assistant Professor of Range Resources; B.S., 1963, New Mexico State; M.S., 1965, Oregon State; Ph.D., 1975, Texas Tech.

*LARRY E. SANDVOL, 1972 (1975), Assistant Extension Professor and Area Entomology Specialist, District IV, Aberdeen; A.S., 1962, North Dakota State; B.A., 1966, Bemidji; M.S., 1968, North Dakota State.

ROBERT L. SARGENT, 1967 (1973), Research Professor of Agricultural Economics; Extension Professor and Extension Economist, Moscow; B.S., 1950, M.S., 1963, Ph.D., 1965, Montana State.

R. GARTH SASSER, 1967 (1972), Associate Professor of Dairy Science; Associate Dairy Scientist; B.S.Ag., 1961, M.S.Ag., 1963, Idaho; Ph.D., 1968, California (Davis).

ERWIN A. SAUTER, JR., 1956 (1973), Research Professor of Poultry Science; Poultry Scientist; B.S., 1950, M.S., 1952, Ph.D., 1966, Washington State.

CARLETON N. SAVAGE, 1957 (1975), Professor of Geology; Senior Geologist; A.B., 1938, Colby; M.S., 1940, Northwestern.

JAY J. SCHELDORF, 1966 (1974), Professor of Chemical Engineering and Engineering Science; B.S.Ch.E., 1953, Illinois, M.S.Ch.E., 1954, Kansas State; Ph.D., 1958, Colorado.

STEWART C. SCHELL, 1949 (1963), Professor of Zoology; B.S., 1939, Kansas State; M.S., 1941, North Carolina State; Ph.D., 1949, Illinois.

JOHN A. SCHENK, 1961 (1971), Professor of Forest Entomology; Forest Entomologist; B.S.F., 1950, Michigan; M.S., 1956, Ph.D., 1961, Wisconsin.

RICHARD W. SCHERMERHORN, 1971, Professor of Agricultural Economics; Department Head, 1971-; Agricultural Economist; Chairman, Faculty Council, 1975-76; B.S.Ag., 1958, M.S., 1959, Georgia; Ph.D., 1962, Oregon State.

*PETER R. SCHMIDT, 1976, Affiliate Professor of Anthropology, Boise; A.B., 1965, Stanford; M.A., 1967, UCLA; Ph.D., 1967, Northwestern.

RICHARD F. SCHMITZ, 1970, Affiliate Professor of Forest Entomology, U.S. Forest Service, Moscow; B.S., 1957, Wisconsin (Milwaukee); M.S., 1965, Oregon State.

*RICHARD E. SCHMUNK, 1960, Affiliate Professor of Physics, INEL, Idaho Falls; B.A., 1951, M.A., 1953, Miami; M.S., 1957, Ph.D., 1959, Case.

*ARTHUR P. SCHNEIDER, 1969, Affiliate Professor of Veterinary Science, Idaho Bureau of Animal Industry, Boise; B.S., 1938, D.V.M., 1938, Washington State.

JOHN H. SCHOMAKER, 1975, Assistant Professor of Wildland Recreation Management; B.A., 1965, Carleton; M.S., 1973, Utah State; Ph.D., 1975, Colorado State.

*STERLING W. SCHOW, 1944 (1971), Extension Professor and Power County Extension Agricultural Agent, American Falls; B.S.Ag., 1939, Utah State.

*AGNES CRAWFORD SCHULDT, 1927-1930, 1946 (1965), Professor Emerita of Music (Piano, Music Literature); B.Mus., 1924, M.Mus., 1927, Syracuse. Emerita since 1967 (now residing in Moscow, Idaho).

RUSSELL W. SCHUMACHER, 1974, Assistant Professor of Naval Science; B.S., 1966, Fresno State.

CYNTHIA J. SCHWENK, 1974, Visiting Assistant Professor of History; B.A., 1968, Dickinson; M.A., 1970, Missouri.

*DONALD R. SCOTT, 1956 (1972), Associate Research Professor of Entomology, Parma; B.S., 1948, M.S., 1952, Nebraska.

GARY L. SCOTT, 1974, Associate Professor of Naval Science; B.S., 1955, Iowa State; M.S., 1970, U.S. Naval Post Graduate School.

*KATHRYN L. SCOTT, 1974, Extension Instructor and Extension Home Economist for Madison County, Rexburg; B.S., 1974, Wayne State (Detroit).

*LARRY D. SCOTT, 1975, Affiliate Professor of Office Administration, INEL, Idaho Falls; B.S., 1965, M.S., 1966, Brigham Young.

RICHARD K. SCOTT, 1975, Assistant Professor of Naval Science; B.S., 1970, Brigham Young.

MORTON W. SCRIPTER, 1971, Professor of Geography; Department Head, 1971-; B.S., 1962, Southern Oregon; M.S., 1964, Ph.D., 1967, Wisconsin.

*LLOYD H. SCRIVNER, 1948, Professor of Veterinary Science and Department Head Emeritus (Head, Department of Veterinary Science 1948-1967); D.V.M., 1929, Colorado; M.S., 1939, Cornell. Emeritus since 1967 (now residing in Moscow, Idaho).

*ROBERT H. SEALE, 1949-1950, 1951 (1966), Professor Emeritus of Forestry (Economics) (Associate Dean, College of Forestry, Wildlife and Range Sciences, 1965-1972); B.S., 1940, California (Berkeley); M.S.For., 1942, Idaho; Ph.D., 1965, State University College of Forestry (Syracuse, N.Y.). Emeritus since 1975 (now residing in Moscow, Idaho).

FRANCIS SEAMAN, 1949 (1970), Professor of Philosophy; Department Chairman, 1974-; Director, General Studies Program; B.S., 1943, M.A., 1947, Ph.D., 1951, Michigan.

FORREST E. SEARS, 1966 (1972), Associate Professor of Theatre Arts; B.A., 1955, Redlands; M.F.A., 1958, Yale.

CLARENCE I. SEELY, 1947 (1955), Professor of Plant Sciences; Weed Scientist; B.S., 1933, M.S., 1935, Washington State.

DONALD W. SEELYE, 1959 (1974), Professor of Labor Relations; Head, Department of Business, 1974-; A.B., 1950, Indiana.

*MAURICE J. SEXEY, 1975, Affiliate Professor of Industrial Education, INEL, Idaho Falls; B.S., 1959, San Diego State; Professional Certificate, 1965, California (San Diego).

*CECIL R. SHABER, 1970, Affiliate Professor of Industrial Safety, INEL, Idaho Falls; B.S., 1944, M.S., 1948, Oklahoma A & M.

WILLIAM H. SHANE, 1969 (1975), Associate Professor of Agricultural Education; Associate Extension Professor and Extension Staff Development Specialist, Moscow; B.S.Ed., 1959, M.Ed., 1962, Ed.Spec., 1964, Idaho.

*D. WAYNE SHARP, 1963 (1976), Associate Extension Professor and Ada County Extension Agricultural Agent, Boise; B.S.Ag., 1963, Idaho.

LEE A. SHARP, 1949 (1967), Professor and Chairman of Range Resources, 1974-; B.S., 1948, M.S., 1949, Utah State; Ph.D., 1966, Oregon State.

STANLEY A. SHEPARD, 1951-1954, 1961 (1971), Associate Director of Libraries with rank of Professor; B.A., 1947, B.S., 1948, Rutgers; M.S.L.S., 1951, Columbia.

*THEODORE A. SHERMAN, 1931 (1957), Professor Emeritus of English; B.A., 1924, Stanford; M.A., 1933, Idaho. Emeritus since 1966 (now residing in Moscow, Idaho).

MICHAEL D. SHIELDS, 1974, Instructor in Accounting; B.A., 1973, Washington State.

*DAVID S. SHORT, 1971, Extension Instructor and Boundary County Extension Manpower Agent, Bonners Ferry; B.S., 1942, Oregon State.

JEAN'NE M. SHREEVE, 1961 (1967), Professor of Chemistry; Department Head, 1973-; B.A., 1953, Montana; M.S., 1956, Minnesota, Ph.D., 1961, Washington (Seattle).

ROBERT H. SHREVE, 1966, Professor of Education (Administration); Ph.B., 1936, Lawrence; M.A., 1941, Ed.D., 1955, Northern Colorado.

*WILLMA C. SHRYACK, 1950 (1974), Extension Professor Emerita (Home Demonstration Agent, Pocatello, 1950-1955; Home Furnishings Specialist, Moscow, 1955-1974); B.A., 1937, Northern Colorado; M.H.Ec., 1958, Oregon State. Emerita since 1974 (now residing in Moscow, Idaho).

GEORGIA H. SHURR, 1972-73, 1975 (1975), Associate Professor of Foreign Languages and Literatures (French); B.S., 1964, East Carolina; M.S., 1967, Ph.D., 1971, North Carolina (Chapel Hill).

EVERETT F. SIECKMANN, 1962 (1967), Professor of Physics; B.A., 1950, Doane; M.S., 1952, Florida State; Ph.D., 1960, Cornell.

PETER L. SIEMS, 1965 (1972), Professor of Geology; B.Sc., 1957, London; D.Sc., 1967, Colorado School of Mines.

HENRY W. SILHA, 1941 (1975), Professor of Mechanical Engineering; B.S.M.E., 1940, Montana State; M.S.M.E., 1950, Idaho.

GEORGE M. SIMMONS, 1975, Assistant Professor of Chemical Engineering; B.S., 1965, M.S., 1966, Idaho; Ph.D., 1970, Stanford.

*ROBERT WAYNE SIMMONS, 1975, Extension Instructor and Washington County Extension Agricultural Agent, Weiser; B.S., 1969, M.S., 1971, Tennessee.

*ROY E. SIMONDS, 1970, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1946, Virginia; M.S., 1969, Idaho.

*GALE G. SIMONS, 1970, Affiliate Professor of Mechanical Engineering, INEL, Idaho Falls; A.A., 1959, Pratt; B.S., 1962, M.S., 1965, Ph.D., 1968, Kansas State.

*FERROL B. SIMPSON, 1961, Affiliate Professor of Mathematics, INEL, Idaho Falls; B.S., 1950, M.S., 1952, Utah State.

M. VOEDEAN SIMPSON, 1975, Assistant Extension Professor and Extension Housing, Equipment, and Home Furnishings Specialist, Moscow; B.S., 1968, California State Polytechnic (San Luis Obispo); M.S., 1975, California State (Long Beach).

*ORVAL D. SIMPSON, 1961, Affiliate Professor of Mathematics, INEL, Idaho Falls; B.S., 1950, Utah State; M.S., 1952, Idaho.

*WILLIAM R. SIMPSON, 1949 (1970), Research Professor of Plant Sciences (Plant Pathology), Parma; B.S.Ag., 1949, M.S.Ag., 1951, Idaho.

*GILBERT L. SINGER, 1970, Affiliate Professor of Mathematics, INEL, Idaho Falls; B.S., 1963, Illinois; M.S., 1966, Northern Illinois.

TEOMAN SIPAHIGIL, 1970 (1975), Associate Professor of English; B.A., 1961, Earlham; M.A., 1963, Miami (Ohio); Ph.D., 1970, California (Los Angeles).

JOHN B. SITA, 1965 (1968), Associate Professor of Foreign Languages and Literatures (Spanish, Linguistics); Maturita Classica, 1931, Liceo Balbo; Laurea (Doctorate), 1936, Venice.

LYNN J. SKINNER, 1971 (1975), Associate Professor of Music (Music Education); B.S., 1962, M.Mus., 1966, Ed.D., 1970, Utah State.

*H. EUGENE SLADE, 1942, Business Manager Emeritus; B.S.Bus., 1943, Idaho. Emeritus since 1974 (now residing in Moscow, Idaho).

*LOUISE L. SLADE, 1944 (1972), Catalog Librarian Emerita with rank of Professor; B.S., 1942, B.S.L.S., 1943, Denver. Emerita since 1972 (now residing in Moscow, Idaho).

*CALVIN E. SLATER, 1974, Affiliate Professor of Nuclear Engineering, INEL, Idaho Falls; B.S., 1963, M.S., 1965, Ph.D., 1968, Oklahoma State.

WILLIAM P. SLOAN, 1955 (1969), Professor of Architecture; B.Arch., 1948, Rensselaer; M.C.P., 1961, Yale.

MARK J. SMAHA, 1975, Instructor in Physical Education and Athletic Trainer; B.S., 1965, Iowa; M.S., 1972, Marshall.

CHARLES J. SMILEY, 1962 (1967), Professor of Geology; Acting Assistant Dean, College of Mines, 1975-; B.A., 1951, Western Washington State; M.A., 1954, Ph.D., 1960, California (Berkeley).

*ALAN J. SMITH, 1970, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1965, M.S., 1967, Utah.

ARTHUR D. SMITH, JR., 1973, Associate Professor of Law; B.S., 1965, Utah State; J.D., 1968, George Washington.

HOWARD W. SMITH, 1954 (1959), Associate Professor of Entomology; Associate Entomologist; B.S., 1937, M.S., 1938, New Hampshire; Ph.D., 1950, Ohio State.

*J. HAMILTON SMITH, 1969, Affiliate Professor of Soil Sciences, Snake River Conservation Research Station, U.S. Department of Agriculture, Kimberly; B.S., 1951, Brigham Young; M.S., 1953, Utah State; Ph.D., 1955, Cornell.

JOHN G. SMITH, 1975, Senior Instructor in Physical Education, Head Baseball Coach, and Assistant Basketball Coach; B.S., 1948, M.A., 1955, Central State (Oklahoma).

*KARL L. SMITH, 1974, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1961, Brigham Young; M.S., 1965, Utah State.

*LAMONT SMITH, 1955 (1971), Associate Extension Professor and Extension Dairyman, Pocatello; B.S.Ag., 1951, M.Ag., 1968, Idaho.

LEWIS B. SMITH, 1967 (1975), Professor of Education (Elementary Education); A.B., 1952, Hiram; M.Ed., 1957, Kent State; Ph.D., 1967, Wisconsin.

*MERVIN L. SMITH, 1976, Affiliate Professor of Nuclear Engineering, INEL, Idaho Falls; A.B., 1955, Southwest Missouri State; M.A., 1958, Missouri, Ph.D., 1960, Iowa State.

RICHARD R. SMITH, 1967 (1970), Assistant Professor of Industrial Education; B.S.Ed., 1967, M.S.Ed., 1969, Idaho.

*ROSA L. SMITH, 1961 (1976), Associate Extension Professor and Idaho County Extension Home Economist, Grangeville; B.S.H.Ec., 1956, Kansas State.

*VANCE T. SMITH, 1941-1944, 1945 (1971), Extension Professor and Bingham County Extension Agricultural Agent, Blackfoot; B.S.Ag., 1939, Idaho; M.S., 1941, Washington State.

*HERVON L. SNIDER, 1949 (1953), Professor Emeritus of Education (Head, Department of Education, 1961-1970; Associate Dean, College of Education, 1970-1974); B.S.Ed., 1941, M.A., 1947, Ph.D., 1949, Nebraska. Emeritus since 1974 (now residing in Moscow, Idaho).

*JOHN A. SNIDER, 1949 (1954), Professor Emeritus of Education (Elementary Education); B.S.Ed., 1930, M.S.Ed., 1938, Oklahoma; Ed.D., 1949, Colorado. Emeritus since 1968 (now residing in Moscow, Idaho).

ROGER F. SNIDER, 1973, Research Instructor in Political Science; Assistant Director, Bureau of Public Affairs Research; B.A., 1968, College of Idaho; M.S., 1969, Idaho.

BRENT M. SNOW, 1975, Instructor in Guidance and Counseling; B.S., 1970, Brigham Young; M.S., 1974, Oklahoma State.

WILLIAM H. SNYDER, 1956 (1972), Professor of Landscape Architecture; B.S., 1948, South Dakota State; M.S., 1950, Illinois; M.L.A., 1970, California (Berkeley); M.F.A., 1972, Idaho.

*CHARLES W. SOLBRIG, 1970, Affiliate Professor of Mathematics, INEL, Idaho Falls; B.S.M.E., 1960, M.S., 1962, Ph.D., 1966, Illinois Institute of Technology.

ROBERT L. SOLSO, 1975, Professor of Psychology; Department Chairman, 1975-; B.A., 1957, Hastings; M.A., 1959, Nebraska; Ph.D., 1967, St. Louis.

KENNETH M. SOWLES, 1969 (1972), Associate Professor of Wood Utilization and Marketing; Assistant to the Dean, College of Forestry, Wildlife and Range Sciences; B.S.F., 1961, Northern Arizona; M.S., 1972, Idaho.

RICHARD J. SPANGLER, 1968 (1973), Associate Professor of Chemistry; B.S., 1962, Wyoming; Ph.D., 1967, Wayne State (Detroit).

*WALTER C. SPARKS, 1947 (1968), Research Professor of Plant Sciences (Plant Physiology), Aberdeen; B.S., 1941, M.S., 1943, Colorado State.

*DAVID A. SPENCER, 1975, Affiliate Clinical Professor of Medical Science, Lewiston; B.S., 1961, M.D., 1964, Oklahoma.

ROBERT J. SPEVACEK, 1968 (1975), Associate Professor of Music (Low Brass, Bands); B.Mus., 1959, M.Mus., 1964, Wisconsin.

RUTH W. SPIDAHL, 1971, Professor of Home Economics; Extension Professor; State Extension Home Economics Leader, Moscow; B.S., 1947, Minnesota; M.S., 1965, North Dakota State.

*EMMET E. SPIKER, 1946 (1966), Professor Emeritus of Physics (Electron Microscopist); B.S., 1933, Idaho. Emeritus since 1966 (now residing in Moscow, Idaho).

*H. LARRY SPILKER, 1970, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1965, J.D., 1968, Utah.

GEORGE G. SPOMER, 1972, Associate Professor of Botany (Ecological Physiology); B.S., 1959, M.S., 1961, Ph.D., 1962, Colorado State.

RODERICK SPRAGUE, 1967 (1972), Professor of Anthropology; Head, Department of Sociology/Anthropology, 1968-; B.A., 1955, M.A., 1959, Washington State; Ph.D., 1967, Arizona.

*FLOYD W. SPRAKTES, 1964, Affiliate Professor of Metallurgy, INEL, Idaho Falls; B.S.Met.E., 1952, Idaho.

ALBERT R. STAGE, 1962, Affiliate Professor of Forest Management, U.S. Forest Service, Moscow; B.S., 1951, M.F., 1952, M.S., 1961, Ph.D., 1966, Michigan.

*WILLIAM W. STALEY, 1928 (1945), Professor Emeritus of Mining Engineering; B.S.Min.E., 1925, New Mexico Institute of Mining and Technology; M.S.Met., 1929, Idaho; E.M., 1932, New Mexico Institute of Mining and Technology. Emeritus since 1966 (now residing in Tucson, Arizona).

*BEATRICE STALKER, 1959 (1973), Extension Professor Emerita (Ada County Extension Home Economist, 1959-1973); B.S.H.Ec., 1930, Idaho. Emerita since 1973 (now residing in Boise, Idaho).

*GILBERT F. STALLKNECHT, 1968 (1973), Associate Research Professor of Plant Sciences (Plant Physiology), Aberdeen; B.S., 1962, M.S., 1966, Ph.D., 1968, Minnesota.

THEODORE E. STANTON, 1971, Assistant Professor of Journalism; B.A., 1951, Colgate; M.S., 1952, Columbia.

RONALD W. STARK, 1970, Professor of Forestry and Entomology; Coordinator of Research; Dean, Graduate School, 1970-1975; B.S., 1948, M.A., 1951, Toronto; Ph.D., 1958, British Columbia.

*JUDY L. STARKEY, 1975, Extension Instructor and Franklin County Extension Home Economist, Preston; B.S., 1973, M.S., 1974, Utah State.

ERIK H. STAUBER, 1970, Assistant Professor of Veterinary Science; Assistant Veterinarian; D.V.M., 1966, Purdue; Ph.D., 1971, Washington State.

HOLGER STAVE, 1975, Assistant Professor of Theatre Arts; B.A., 1969, Hanover (Indiana); M.A., 1974, Syracuse.

EDWARD E. STEELE, 1973, Instructor and Research Associate in Poultry Science; B.S., 1957, M.S., 1967, Kansas State.

*ROBERT W. STEELE, 1975, Affiliate Professor of Forest Ecology, Boise Research Center, Boise; B.S., 1969, M.S., 1971, Idaho.

ELIAS K. STEFANAKOS, 1968 (1972), Associate Professor of Electrical Engineering; B.S.E.E., 1964, M.S.E.E., 1965, Ph.D., 1969, Washington State.

*H. WALTER STEFFENS, 1929 (1947), Professor of Zoology and Academic Vice President Emeritus (Dean, Graduate School, 1951-1953; Executive Dean, 1953-1961; Academic Vice President, 1961-1969); B.S., 1929, M.S., 1930, Idaho; Ph.D., 1940, Harvard; LL.D., 1969, Idaho. Emeritus since 1969 (now residing in Moscow, Idaho).

RAPHAEL J. STEINHOFF, 1965, Affiliate Professor of Forest Genetics, U.S. Forest Service, Moscow; B.S.For., 1959, Idaho; M.S., 1961, North Carolina State; Ph.D., 1964, Michigan State.

M. WILLIAM STELLMON, 1964 (1971), Associate Professor of Agricultural Information; Associate Extension Professor; Agricultural and Extension Editor, 1971-; B.A., 1951, Montana; M.Ed., 1971, Idaho.

*DOROTHY N. STEPHENS, 1939 (1966), Extension Professor and State Home Economics Leader Emerita; B.S.H.Ec., 1930, Idaho; M.S., 1932, New York. Emerita since 1970 (now residing in Boise, Idaho).

*GORDON R. STEPHENSON, 1965, Affiliate Professor of Geology, Northwest Watershed Research Center, U.S. Department of Agriculture, Boise; B.S., 1957, Augustana (Ill.), M.S., 1961, Washington State.

EMSLEY H. STEVENS, 1969 (1972), Associate Professor of Electrical Engineering; B.S., 1961, M.S., 1963, Ph.D., 1970, Washington (Seattle).

ELIZABETH E. STEVENSON, 1966 (1972), Associate Professor of Foreign Languages and Literatures (French); Assistant Dean, College of Letters and Science, 1971-; Assistant Coordinator of Research, 1973-; B.A., 1935, Vassar; Ph.D., 1939, Yale; M.A., 1969, Trinity.

GERALDINE S. STEVENSON, 1975, 1976, Instructor in Home Economics; B.S., 1949, Idaho.

*STEPHEN M. STEWARD, 1975, Affiliate Clinical Professor of Medical Science, Clarkston; B.S., 1965, M.D., 1969, Iowa.

RICHARD B. STEWART, 1969, Professor of Mechanical Engineering (Department Chairman, 1969-1974); B.S.M.E., 1946, M.S.M.E., 1948, Iowa; M.E., 1959, Colorado; Ph.D., 1966, Iowa; P.E.

DAVID L. STIERS, 1974, Visiting Assistant Professor of Plant Pathology; B.S., 1963, Ouachita Baptist; M.S., 1969, Arkansas; Ph.D., 1974, Washington State.

*EDWARD S. STIMSON, 1947, Professor of Law and Dean Emeritus (Dean, College of Law, 1947-1962); A.B., 1920, B.S., 1920, A.M., 1922, Ohio State; J.D., 1927, S.J.D., 1932, Michigan. Emeritus since 1965 (now residing in Victoria, B.C., Canada).

DAN STIPE, 1975, Affiliate Professor of Clinical Science, Lewiston; B.A., 1951, M.D., 1956, Kansas.

RICHARD C. STOCKTON, 1975, Professor of Naval Science and Commanding Officer, Navy-Marine Officer Education Program; B.S., 1951, New Mexico; M.S., 1967, San Diego State.

*ROBERT H. STODDARD, 1975, Extension Instructor and Bannock County Extension Agricultural Agent, Pocatello; B.S., 1972, Idaho.

RUTH E. STOKES, 1975, Assistant Professor of English; B.A., 1968, Oberlin; M.A., 1972, Ph.D., 1975, Michigan State.

*ROBERT L. STOLTZ, 1975, Assistant Extension Professor and Entomologist, Twin Falls; B.S., 1968, California (Davis); Ph.D., 1973, California (Riverside).

LEO F. STORM, 1969, Professor of English (Department Chairman, 1969-1973); B.A., 1949, Washington; M.A., 1950, Edinburgh; Ph.D., 1958, Washington (Seattle).

KAREL J. STOSZEK, 1975, Associate Professor of Forest Resources; Diplom Ingenieur, 1959, Brno (Czechoslovakia); Ph.D., 1972, Oregon State.

*CLYDE H. STRANAHAN, 1943 (1971), Extension Professor Emeritus (Extension Agricultural Agent for Clearwater County, 1943-1945; for Kootenai County, 1946-1974); B.S.Ag., 1940, Idaho. Emeritus since 1974 (now residing in Coeur d'Alene, Idaho).

CHARLES R. STRATTON, 1971 (1976), Associate Professor of English; B.S., 1960, Carroll; M.S., 1968, Rensselaer; Ph.D., 1971, Wisconsin.

*BEN W. STUDER, 1960 (1971), Associate Extension Professor and Boundary County Extension Agricultural Agent, Bonners Ferry; B.S.Ag., 1958, Idaho.

*WILLIAM J. SUITT, 1970, Affiliate Professor of Mathematics, INEL, Idaho Falls; B.S., 1964, Arkansas Polytechnic; M.S., 1967, South Dakota School of Mines and Technology.

JOHN H. SULLIVAN, 1966 (1970), Associate Professor of Foreign Languages and Literatures (German); B.A., 1949, Oregon; M.A., 1951, Johns Hopkins; Ph.D., 1966, California (Berkeley).

PING-TSOONG SUN, 1957 (1966), Associate Professor of Engineering Science and Civil Engineering (Statistics); B.S.M.E., 1937, Chiao-Tung; M.S.M.E., 1950, Tennessee; P.E.

DONALD C. SUNDBERG, 1974, Assistant Professor of Chemical Engineering; B.S., 1965, Worchester Polytechnic; M.S., 1968, Ph.D. 1970, Delaware.

*PAUL L. SUNDERLAND, 1973, Extension Instructor and Kootenai County Extension Agricultural Agent, Coeur d'Alene; B.S., 1973, Washington State.

*DONALD W. SUNDERMAN, 1969, Affiliate Professor of Plant Sciences (Plant Breeding), U.S. Department of Agriculture, Aberdeen; B.S., 1950, M.S., 1951, Ph.D., 1960, Minnesota.

ROBERT L. SURLES, 1972 (1973), Assistant Professor of Foreign Languages and Literatures (Spanish); B.A., 1967, M.A., 1969, San Diego State.

STEPHEN L. TANNER, 1969 (1973), Associate Professor of English; B.A., 1962, M.A., 1964, Utah; Ph.D., 1969, Wisconsin.

ROBERT V. TARPCHINOFF, 1975, Assistant Professor of Distributive Education; B.Ed., 1963, Toledo; M.Ed., 1975, Bowling Green State.

ROY E. TAYLOR, 1968 (1973), Associate Extension Professor and Extension Agricultural Engineer, Moscow; B.S.Ag.E., 1948, Idaho; M.T.Sc., 1966, Idaho State.

*KIUTUS TECUMSEH, 1974, Affiliate Professor of Anthropology, INEL, Idaho Falls; B.S., 1972, Washington State.

MATT E. TELIN, 1968, Registrar, 1970-; B.S., 1958, Western Montana; M.Ed., 1972, Idaho.

*JUDITH A. TEMPLETON, 1975, Research Professor of Animal Industries; Superintendent, Caldwell-Parma Research and Extension Center; B.S., 1958, Oregon State; M.S., 1963, Ph.D., 1966, Washington State.

GEORGE W. TERESA, 1968 (1973), Professor of Bacteriology; Bacteriologist; B.S., 1952, Arkansas A & M; M.S., 1955, Arkansas; Ph.D., 1959, Kansas State.

DAVID L. THACKER, 1954 (1968), Assistant Research Professor of Dairy Science; B.S.Ag., 1950, Idaho; M.S.Ag., 1952, Pennsylvania State.

*GARY R. THAYER, 1975, Affiliate Professor of Nuclear Engineering, INEL, Idaho Falls; B.S., 1966, Nebraska; M.S., 1968, Ph.D., 1973, Illinois.

*KENT GORDON THERP, 1975, Affiliate Professor of Industrial Education, INEL, Idaho Falls; B.S., 1962, California State Polytechnic.

DAVID L. THACKER, 1954 (1968), Assistant Research Professor of Dairy Science; B.S.Ag., 1950, Idaho; M.S.Ag., 1952, Pennsylvania State.

LELAND M. THIEL, 1973, Visiting Assistant Professor of English; A.B., 1966, California (Berkeley); M.A., 1970, San Jose State; Ph.D., 1973, Washington State.

CHARLES M. THOMAS, 1959 (1971), Associate Extension Professor and Assistant State 4-H Leader, Moscow; B.S.Ag., 1959, Idaho; M.Ex., 1971, Washington State.

JOE E. THOMAS, 1961-1962, 1966 (1973), Professor of Electrical Engineering; Department Chairman, 1973-; B.S.E.E., 1960, Wyoming; M.S.E.E., 1962, Idaho; Ph.D., 1970, Denver; P.E.

STANLEY W. THOMAS, 1954, Affiliate Professor of Religious Studies, Idaho School of Religion, Moscow; B.A., 1947, Maine; S.T.B., 1950, Ph.D., 1960, Boston.

CHARLES J. THOMPSON, 1965 (1968), Assistant Professor of Physical Education; Supervisor, Service Program; B.S.P.E., 1962, Wisconsin State (La Crosse); M.S.P.E., 1965, Indiana.

*LARRY G. THOMPSON, 1971, Affiliate Professor of English, INEL, Idaho Falls; B.A., 1965, M.A., 1967, Brigham Young.

*JIMMY L. THOMPSON, 1975, Affiliate Professor of English, INEL (Idaho Falls); B.S., 1962, Utah State; MBA, 1974, Idaho.

*VICTOR N. THOMPSON, 1970, Affiliate Professor of Business, INEL, Idaho Falls; B.S.E.E., 1959, North Dakota State; M.S., 1970, Idaho.

WILLIAM J. THOMSON, 1968 (1975), Professor of Chemical Engineering; B.Ch.E., 1960, Pratt; M.S., 1961, Stanford; Ph.D., 1969, Idaho.

*RICHARD D. THORSON, 1975, Affiliate Clinical Professor of Medical Science, Lewiston; B.S., 1955, Whitman; M.D., 1959, Washington.

CHARLES M. TINDER, 1971 (1975), Associate Professor of Architecture; B.Arch., 1964, Illinois; M.Arch., 1965, Washington.

*FRED H. TINGEY, 1954, Affiliate Professor of Mathematics, INEL, Idaho Falls; B.S., 1947, Utah State; M.S., 1949, Ph.D., 1951, Washington.

*EDWIN W. TISDALE, 1947 (1953), Professor Emeritus of Range Management (Associate Director, Forest, Wildlife and Range Experiment Station, 1953-1974); B.Sc., 1930, Manitoba; M.S., 1945, Ph.D., 1948, Minnesota. Emeritus since 1975 (now residing in Moscow, Idaho).

*PAUL J. TORRELL, 1957 (1973), Research Professor of Plant Sciences (Weed Science); Extension Weed Specialist, Parma; B.S.Ag., 1952, M.S.Ag., 1954, Idaho.

*DEVERE TOVEY, 1938-1943, 1959 (1974), Associate Extension Professor and Franklin County Extension Agricultural Agent, Preston; B.S.Ag., 1937, Idaho.

WELDON R. TOVEY, 1962-1964, 1965 (1976), Professor of General Engineering; Assistant Dean, College of Engineering, 1971-; B.S.M.E., 1961, M.Ed., 1964, Idaho; Ed.D., 1971, Brigham Young.

*ROBERT TRIPP, 1972, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1942, Cincinnati; M.B.A., 1972, Idaho.

JACK F. TRUITT, 1975, Assistant Professor of Accounting; B.B.A., 1966, M.B.A., 1967, North Texas State; Ph.D., 1975, Illinois.

*CLIFFORD M. TRUMP, 1971, Affiliate Professor of Education, Southwest Regional Director of Continuing Education, Office of Higher Education, Boise; B.A., 1959, Kearney State; M.A., 1966, Arizona State; Ed.D., 1970, Wyoming.

*CHARLES M. TSCHANZ, 1972, Affiliate Professor of Geology, U.S. Geological Survey, Denver, Colo.; B.S., 1949, Idaho; M.S., 1951, Stanford.

MASON TUNG, 1962 (1970), Professor of English; B.A., 1951, Taiwan; M.A., 1958, Baylor; Ph.D., 1962, Stanford.

BETTY J. TURNER, 1975, Associate Extension Professor and Extension State Family Economics Specialist, Moscow; B.S., 1951, Lindenwood; M.S., 1969, Idaho.

ROBERT L. TURNER, 1957 (1966), Associate Professor of General Engineering; B.S.Ed., 1958, M.Ed., 1960, Idaho.

*FENTON H. TYLER, 1972, Affiliate Professor of Business, INEL, Idaho Falls; B.S., 1967, Brigham Young; M.S., 1972, Idaho.

EDMUND E. TYLUTKI, 1956 (1963), Associate Professor of Botany; B.S., 1951, M.S., 1952, Illinois; Ph.D., 1955, Michigan State.

JOSEPH J. ULLIMAN, 1974, Associate Professor of Forestry (Remote Sensing); B.A., 1958, Dayton; M.F., 1968, Ph.D., 1971, Minnesota.

GLEN G. UTZMAN, 1974, Assistant Professor of Accounting; B.A., 1961, Washington State; J.D., 1964, Idaho.

*DAVID C. VALDER, 1975, Affiliate Clinical Professor of Medical Science, Moscow; B.S., 1948, Oklahoma State; M.D., 1951, Oklahoma.

YA-YUE VAN, 1976, Assistant Professor of Physics; B.S., 1967, M.S., 1968, Wisconsin; Ph.D., 1974, Massachusetts.

JOHN N. VANDERSCHAAF, 1975, Professor of Military Science and Department Head; B.S., 1954, Michigan State; M.S.Engr., 1968, Arizona State.

PHYLLIS M. VAN HORN, 1972, Instructor in Foreign Languages and Literatures; Foreign Student Adviser; B.A., 1965, Austin; M.S., 1972, Idaho.

KAREN H. VAN HOUTEN, 1969 (1975), Instructor in Electrical Engineering; B.S., 1967, M.S., 1970, Idaho.

JAMES K. VANLEUVEN, 1970, Assistant Professor of Journalism; B.S., 1964, M.S., 1966, Oregon.

*CARL G. VAN SLYKE, 1970 (1971), Assistant Extension Professor and Kootenai County Extension Agricultural Agent, Coeur d'Alene; B.S.Ag., 1967, Idaho; M.S., 1970, Purdue.

*RUTH E. VAN SLYKE, 1974, Assistant Extension Professor and Elmore County Extension Home Economist, Mountain Home; B.S., 1964, Idaho.

DAVID G. VAURIO, 1974, Assistant Professor of Naval Science; B.S., 1969, Houston.

HERBERT J. VENT, 1960 (1965), Professor of Education (Elementary Education); B.S., 1941, M.S.Geog., 1942, Oregon; Ed.D., 1949, Stanford.

*E. KENT VERNON, 1971, Affiliate Professor of Economics, INEL, Idaho Falls; B.S., 1961, M.S., 1968, Brigham Young.

DEAN L. VETTRUS, 1961, General Manager, ASUI and Student Union; B.S., 1961, B.A., 1961, Denver.

NORMAN VIEIRA, 1965 (1968), Professor of Law; A.B., 1951, Columbia; J.D., 1963, Chicago.

SHELDON A. VINCENTI, 1973, Associate Professor of Law; Associate Dean, College of Law, 1974-; A.B., 1960, J.D., 1963, Harvard.

JACK R. VOORHEES, 1969, Professor of Naval Science and Department Head Emeritus (Department Head, 1969-1975); B.S., 1958, Washington; M.A., 1964, George Washington. Emeritus since 1975 (now residing in Pullman, Washington).

WILLIAM L. VOXMAN, 1970 (1972), Associate Professor of Mathematics; B.A., 1960, M.S., 1964, Ph.D., 1968, Iowa.

GEORGE D. WAGENHEIM, JR., 1974, Assistant Professor of Marketing; B.S., 1970, Rutgers; Ph.D., 1974, Michigan State.

CHIEN M. WAI, 1969 (1973), Associate Professor of Chemistry and Geology (Geochemistry); B.S., 1960, Taiwan; Ph.D., 1967, California (Irvine).

LILY C. WAI, 1970 (1976), Assistant Social Science Librarian with rank of Assistant Professor; B.A., 1960, Tunghai (Taiwan); M.S., 1965, Illinois.

*DONALD G. WALDHALM, 1960 (1968), Associate Research Professor of Veterinary Science and Veterinary Microbiology, Caldwell; B.A., 1948, M.S., 1950, Minnesota; Ph.D., 1953, Illinois.

*THOMAS R. WALENTA, 1947 (1953), Professor Emeritus of Law; Chairman, Faculty Council, 1966-1967; B.S., 1926, Idaho; LL.B., 1933, Minnesota; LL.M., 1953, S.J.D., 1960, Illinois. Emeritus since 1967 (now residing in Grangeville, Idaho).

DELBERT J. WALKER, 1950 (1963), Associate Professor of Mathematics; A.B., 1935, Nebraska State; M.A., 1947, Nebraska.

*DEWARD E. WALKER, JR., 1967-1969, 1971, Affiliate Professor of Anthropology, University of Colorado; B.A., 1961, Ph.D., 1964, Oregon.

DIANE B. WALKER, 1968 (1973), Associate Professor of Physical Education (Dance); Director, Center for Dance; B.F.A., 1960, Boston Conservatory; M.Ed., 1968, Colorado State.

*HELEN L. WALKER, 1969, Affiliate Professor of Food Science, Washington State Dairy Council, Spokane, Wa.; B.A., 1947, Montana.

*NORMAN L. WALKER, 1969 (1974), Assistant Extension Professor and Ada County Extension Agricultural Agent, Boise; B.S.Ag., 1955, Idaho; M.S., 1975, Northern Colorado.

ALFRED T. WALLACE, 1967 (1971), Professor of Civil Engineering (Sanitary Engineering); B.S., 1959, Rutgers; M.S., 1960, Ph.D., 1965, Wisconsin; P.E.

RICHARD L. WALLACE, 1967 (1973), Associate Professor of Zoology; B.S., 1956, Washington State; M.S., 1961, Ph.D., 1969, Oregon State.

WILLIAM M. WALLACE, 1970 (1976), Assistant Science/Technology Librarian with rank of Assistant Professor; B.S., 1968, Portland State; M.L.S., 1970, Oregon.

ROGER P. WALLINS, 1970 (1975), Associate Professor of English; A.B., 1962, City College of New York; M.A., 1964, Ph.D., 1972, Ohio State.

CHARLES W. WALTON, 1961 (1974), Professor of Music (Voice, Opera Workshop); B.Mus., 1956, M.Mus., 1961, Michigan.

*ARTHUR J. WALZ, 1948-1956, 1967 (1974), Extension Professor and Area Extension Potato Specialist, Parma; B.S., 1942, M.S., 1948, California (Berkeley).

CHI-WU WANG, 1960 (1967), Professor of Forestry (Genetics); B.S., 1933, National Tsing Hua (Peking); M.S., 1947, Yale; Ph.D., 1953, Harvard.

YA-YEN WANG, 1960 (1972), Associate Professor of Mathematics; B.S., 1956, Villa Maria; M.S., 1958, Florida; Ph.D., 1965, Idaho.

LESLIE A. WARDENAAR, 1975, Visiting Assistant Professor of English; B.A., 1968, Whitman, M.A., 1970, Ph.D., 1974, California (Los Angeles).

*LARON C. WARNER, 1946, Purchasing Agent Emeritus. Emeritus since 1965 (now residing in Yuca Valley, California).

RICHARD E. WARNER, 1966, Professor of Mechanical Engineering; A.B., 1942, Miami; M.Sc.Ch.E., 1948, Ph.D., 1951, Ohio State; P.E.

CALVIN C. WARNICK, 1947 (1957), Professor of Civil Engineering (Water Resources); B.S.C.E., 1943, Utah State; M.S.C.E., 1947, Wisconsin; P.E.

*DANIEL E. WARREN, 1929, Extension Professor and State 4-H Club Leader Emeritus; B.S., 1927, Idaho. Emeritus since 1968 (now residing in Palm Desert, California).

JON G. WARREN, 1966, General Counsel; J.D., 1966, Idaho.

RICHARD I. WASHBURN, 1970, Affiliate Professor of Forest Entomology, U.S. Forest Service, Moscow; B.S., 1948, M.S., 1950, Colorado State.

*NORMAN D. WATERS, 1957 (1975), Associate Research Professor of Entomology, Parma; A.A., 1948, Sacramento State; M.S., 1949, Ph.D., 1955, California (Berkeley).

GARY E. WATSON, 1975, Visiting Assistant Professor of Physics; B.A., 1961, San Jose State; Ph.D., 1969, Cornell.

ROSCOE D. WATSON, 1945 (1971), Professor of Plant Sciences; Plant Pathologist; B.S., 1935, M.S., 1937, Utah State; Ph.D., 1942, Cornell.

FREDERICK J. WATTS, 1968 (1973), Professor of Civil Engineering (Hydraulics, Fluids, Water Resources); B.S.C.E., 1954, Iowa State; M.S.C.E., 1964, Ph.D., 1968, Colorado State; P.E.

*JOSEPH W. WATTS, 1940, Bursar and Business Manager Emeritus (Business Manager, 1961-1971; Bursar, 1967-1971); B.S.Bus., 1940, Idaho. Emeritus since 1971 (now residing in Moscow, Idaho).

CHARLES A. WEBBERT, 1948 (1969), Head, Department of Special Collections and Archives, University Library, with rank of Associate Professor; B.A., 1937, Washington; B.S.L.S., 1940, George Peabody; M.S.L.S., 1947, Illinois.

R. RONALD WELLS, 1973, Assistant Professor of Architecture and Planning; B.A., 1970, North Carolina State.

*WADE G. WELLS, 1931-1941, 1945 (1971), Extension Professor and Extension Animal Scientist Emeritus; B.S.Ag., 1939, Idaho. Emeritus since 1973 (now residing in Boise, Idaho).

*J. FREDERICK WELTZIN, 1944, Professor of Education and Dean Emeritus (Dean, College of Education, 1944-1963); B.A., 1925, B.S.Ed., 1925, M.S.Ed., 1927, Ph.D., 1929, Hum.D., 1958, North Dakota. Emeritus since 1967 (now residing in Moscow, Idaho).

*VICTOR L. WENCZEL, 1973, Affiliate Professor of Economics, INEL, Idaho Falls; B.S.Bus., 1967, Brigham Young; M.B.A., 1972, Idaho.

RICHARD F. WERNER, 1971 (1974), Assistant Professor of Music (Trumpet, Jazz Ensemble, Theory); B.Mus.Ed., 1968, M.A., 1970, Denver.

*DARRELL WESENBERG, 1969, Affiliate Professor of Plant Sciences (Plant Breeding), U.S. Department of Agriculture, Aberdeen; B.S., 1962, M.S., 1965, Ph.D., 1968, Wisconsin.

ARNOLD S. WESTERLUND, 1944 (1970), Professor of Art; B.A., 1938, M.A., 1939, Idaho.

*DALE T. WESTERMANN, 1970, Affiliate Professor of Soil Science, Snake River Conservation Research Center, U.S. Department of Agriculture, Kimberly; B.S., 1963, Colorado State; M.S., 1965, Ph.D., 1968, Oregon State.

*MILTON B. WESTON, 1944 (1974), Extension Professor Emeritus (Extension Agricultural Agent for Lincoln County, 1944-1946; for

Bingham County, 1946-1974); B.S., 1932, Utah State. Emeritus since 1974 (now residing in Blackfoot, Idaho).

WILLIAM C. WHARTON, 1975, Assistant Professor of Music (Cello, Bass, Chamber Music); B.S., 1960, Tulane; B.M., 1963, Ohio State; M.M., 1965, Oklahoma; D.M.A., 1970, Arizona.

*BERT R. WHEELER, 1971, Affiliate Professor of Nuclear Engineering, INEL, Idaho Falls; B.S., 1952, Utah State; M.S., 1955, Purdue.

*DONALD R. WHITE, 1968 (1974), Associate Extension Professor and Kootenai, Bonner, Boundary, and Benewah Counties Extension Farm Forester, Coeur d'Alene; A.B., 1953, Colby; B.S., 1958, Oregon State.

ROBERT D. WHITE, 1975, Assistant Professor of Chemistry; B.S., 1966, Denver; Ph.D., 1971, Washington (Seattle).

ROBERT G. WHITE, 1974, Assistant Professor of Fisheries; Assistant Leader, Idaho Cooperative Fishery Unit; B.S.Ed., 1962, M.S.Ed., 1963, Northwest Missouri; Ph.D., 1973, Utah State.

*ALBERT E. WHITEHEAD, 1930 (1955), Professor Emeritus of Speech (Chairman, Speech, 1947-1972); B.A., 1929, Colorado; M.A., 1930, Ph.D., 1944, Wisconsin. Emeritus since 1972 (now residing in Moscow, Idaho).

*JOHN C. WHITEHEAD, 1974, Affiliate Professor of Business, INEL, Idaho Falls; B.A., 1959, Brigham Young; M.A., 1966, Ph.D., 1972, Utah.

ROBERT K. WHITEHEAD, 1975, Assistant Professor of Physical Education and Intramural Director; B.S., 1960, M.Ed., 1967, Colorado State; Ed.D., 1973, Wyoming.

ED F. WICKER, 1963, Affiliate Professor of Forest Pathology, U.S. Forest Service, Moscow; B.S., 1959, Ph.D., 1965, Washington State.

ALVIN C. WIESE, 1946, Professor of Biochemistry; Biochemist (Head, Department of Agricultural Biochemistry and Soils, 1946-1972); B.S., 1935, M.S., 1937, Ph.D., 1940, Wisconsin.

*RAY E. WILCOX, 1973, Affiliate Professor of Geology, U.S. Geological Survey, Denver, Colo.; Ph.B., 1933, Ph.M., 1937, Ph.D., 1941, Wisconsin.

*NED WILDE, 1961, Affiliate Professor of Electrical Engineering, INEL, Idaho Falls; B.S., 1949, Milwaukee School of Engineering; M.S., 1951, Wisconsin.

*WILLARD J. WILDE, 1924 (1945), Professor Emeritus of Accounting; B.S., 1923, Utah; M.S., 1924, California (Berkeley); C.P.A. Emeritus since 1964 (now residing in Walnut Creek, California).

JAMES D. WILLETT, 1968 (1973), Associate Professor of Chemistry and Biochemistry; A.B., 1959, California (Berkeley); Ph.D., 1965, Massachusetts Institute of Technology.

*EDMUND J. WILLIAMS, 1975, Affiliate Professor of Geology, INEL, Idaho Falls; B.S., 1962, M.S., 1964, Utah State.

GAIL A. WILLIAMS, 1974, Visiting Associate Professor of Mathematics; A.B., 1962, M.A., 1963, Indiana. Ph.D., 1968, Michigan State.

GEORGE A. WILLIAMS, 1957 (1965), Professor of Geological Engineering; Head, Department of Geology, 1965-; B.S., 1943, Texas (El Paso); Ph.D., 1951, Arizona.

J. GARY WILLIAMS, 1973, Assistant Professor of English; A.B., 1969, Washington (St. Louis); M.A., 1972, Ph.D., 1973, Cornell.

*JAMES M. WILLIAMS, 1974, Affiliate Professor of Veterinary Science, St. Joseph, Mo.; B.S., 1950, M.S., 1952, North Dakota State.

LARRY G. WILLIAMS, 1956-73; 1975 (1968), Associate Professor of Agricultural Engineering; Associate Agricultural Engineer; B.S.Ag.E., 1956, M.S.Ag.E., 1959, Idaho; P.E.

*LEWIS M. WILLIAMS, 1934, Extension Professor Emeritus (Jefferson County Extension Agricultural Agent, 1934-1950; District Extension Agent Supervisor, 1950-1967); B.S., 1925, Idaho. Emeritus since 1967 (now residing in Boise, Idaho).

ROY E. WILLIAMS, 1966 (1970), Professor of Hydrogeology; Hydrogeologist; B.S., 1961, M.A., 1962, Indiana; Ph.D., 1966, Illinois.

HUGH P. WILLIAMSON, JR., 1974, Assistant Professor of Business; B.A., 1964, Westminster; M.B.A., 1969, Ph.D., 1974, Missouri.

HENRY WILLMES, 1969 (1973), Associate Professor of Physics; Department Chairman, 1975-; B.S., 1961, M.A., 1962, Ph.D., 1966, California (Los Angeles).

*JOHN H. WILMORTH, 1975, Affiliate Professor of Electrical Engineering, College of Idaho, Caldwell; B.S.E.E., 1957, Princeton; M.S., 1958, Ph.D., 1972, Washington.

ESTHER H. WILSON, 1963 (1976), Extension Professor and Extension Nutritionist, Moscow; B.S., 1936, Framingham State; M.S., 1949, Washington State.

*JESSE E. WILSON, 1962-1973, 1974 (1971), Associate Extension Professor and Jerome County Extension Agricultural Agent, Jerome; B.S.Ag., 1961, Idaho.

*LUCIA L. WILSON, 1950 (1972), Extension Professor Emerita (Home Economist at Large, 1950-1955; for Ada County, 1955-1967; Assistant State Home Economics Leader, 1967-1969; Program Leader, Expanded Nutrition Program, 1970-1972); B.S.H.Ec., 1936, Idaho. Emerita since 1972 (now residing in Boise, Idaho).

*BOB V. WINKEL, 1971, Affiliate Professor of Civil Engineering, INEL, Idaho Falls; B.S., 1965, M.S., 1967, Brigham Young; Ph.D., 1970, Colorado.

FRED H. WINKLER, 1955 (1969), Professor of History and Political Science; A.A., 1943, A.B., 1947, M.A., 194S, Florida; Ph.D., 1957, Northwestern.

*HERBERT A. WINNER, 1939 (1946), Professor of Agricultural Education and Department Head Emeritus (Head, Department of Agricultural Education, 1945-1968); B.S., 1927, Montana State; M.S., 1939, Iowa State. Emeritus since 1968 (now residing in Tucson, Arizona).

*RALPH M. WISE, 1960 (1972), Research Professor Emeritus of Agricultural Biochemistry; B.S., 1928, McPherson. Emeritus since 1972 (now residing in Wenatchee, Washington).

RUSSELL V. WITHERS, 1961 (1972), Professor of Agricultural Economics; Agricultural Economist; B.S., 1957, M.S., 1958, Utah State; Ph.D., 1962, Cornell.

*J. CLAIR WIXOM, 1973, Assistant Extension Professor and Area Extension Community Resource Development Specialist, Pocatello; B.A., 1969, Idaho State; M.R.Ed., 1973, Brigham Young.

*ERNEST W. WOHLETZ, 1937 (1949), Professor of Forestry and Dean Emeritus (Dean, College of Forestry, Wildlife and Range Sciences and Director, Forest, Wildlife and Range Experiment Station, 1953-1971); B.S., 1930, M.S., 1947, California (Berkeley). Emeritus since 1972 (now residing in Moscow, Idaho).

VIRGINIA WOLF, 1964, Assistant Professor of Physical Education; B.A., 1946, Earlham; M.S., 1950, Colorado.

*BRENDA J. WOMACK, 1974, Extension Instructor and Caribou County Extension Home Economist, Soda Springs; B.A.Ed., 1969, Arizona State.

*MARY L. WOOD, 1964 (1974), Associate Extension Professor and Extension Area 4-H Specialist, Boise; B.S.Ag., 1953, Fresno State.

*GEORGE W. WOODBURY, 1935-1943, 1948 (1949), Professor Emeritus of Horticulture; B.S., 1927, M.S., 1931, Michigan State;

Ph.D., 1943, Cornell. Emeritus since 1969 (now residing in Moscow, Idaho).

*KATHYRN S. WOODBURY, 1953 (1968), Professor Emerita of Foreign Languages; B.A., 1924, Elmira; M.A., 1930, Maine. Emerita since 1968 (now residing in Moscow, Idaho).

DENNIS E. WOODRUFF, 1966, Instructor and Research Associate in Dairy Science; B.S.Ag., 1966, Idaho.

CHARLES J. WOOLSON, 1971, Assistant Dean for Student Advisory Services; B.S., 1965, Michigan State; M.A., 1970, Central Michigan.

WILLIAM P. WOOLSTON, 1973, Assistant Professor of Photography; A.B., 1967, Princeton; M.F.A., 1973, School of the Art Institute (Chicago).

EDWARD C. WOOLUMS, 1962 (1967), Associate Professor of Education; B.A., 1953, Ed.M., 1955, Ed.D., 1966, Colorado.

*RUBY A. WORTHAM, 1947 (1957), Professor Emerita of Zoology; B.S., Oklahoma City; M.S., Michigan; Ph.D., Washington State. Emerita since 1964 (now residing in Pullman, Washington).

GEORGE T. WRAY, 1969 (1974), Associate Professor of Art; B.S., 1963, Moorhead State; M.F.A., 1969, California College of Arts and Crafts.

LARRY K. WRIGGLE, 1965 (1969), Associate Professor of Education; B.A., 1954, M.Ed., 1960, Eastern Washington State; Ed.D., 1964, Washington State; M.F.A., 1971, Idaho.

*JAMES L. WRIGHT, 1969, Affiliate Professor of Soil Science, Snake River Conservation Research Center, U.S. Department of Agriculture, Kimberly; B.S., 1959, M.S., 1961, Utah State; Ph.D., 1965, Cornell.

RONALD C. WYSE, 1972, Associate Professor of Law; B.A., 1960, J.D., 1965, California (Los Angeles).

*STANLEY YAMAMURA, 1961, Affiliate Professor of Chemistry, INEL, Idaho Falls; B.A., 1953, Hawaii; M.S., 1955, Ph.D., 1957, Iowa State.

*BENNIE D. YATES, 1969, Affiliate Professor of Mathematics, INEL, Idaho Falls; B.S., 1967, M.S., 1968, Wyoming.

*LAWRENCE J. YBARRONDO, 1969, Affiliate Professor of Mechanical Engineering, INEL, Idaho Falls; B.S., 1960, Detroit; M.S., 1962, Northwestern; Ph.D., 1964, Georgia Institute of Technology.

*JUNE C. YERRINGTON, 1973, Affiliate Professor of Dietetics, Veterans Administration Hospital, Boise; B.S., 1945, Iowa State; R.D.

AMOS YODER, 1974, Borah Distinguished Professor of Political Science; B.A., 1938, Ohio Wesleyan; Ph.D., 1949, Chicago.

*R. AARON YORK, 1947 (1971), Associate Extension Professor and Butte County Extension Agricultural Agent, Arco; B.S.Ag., 1947, Idaho.

FRANK YOUNG, 1947 (1950), Associate Professor of Physical Education; Director of Admissions, 1960-; B.S., 1937, Jamestown; M.S., 1947, Oregon.

*CAROL O. YOUNGSTROM, 1929 (1949), Extension Professor and Associate Director Emeritus, Cooperative Extension Service; B.S.Ag., 1928, Oregon State; M.S.Ag., 1930, Kansas State. Emeritus since 1970 (now residing in Boise, Idaho).

*DONALD F. YOUTZ, 1953 (1971), Associate Extension Professor and Twin Falls County Extension Agricultural Agent, Twin Falls; B.S., 1937, Wyoming.

MAYNARD F. YUTZY, 1973, Associate Professor of Education; B.A., 1964, Denver; M.A., 1967, Northern Colorado; Ed.D., 1973, Oregon.

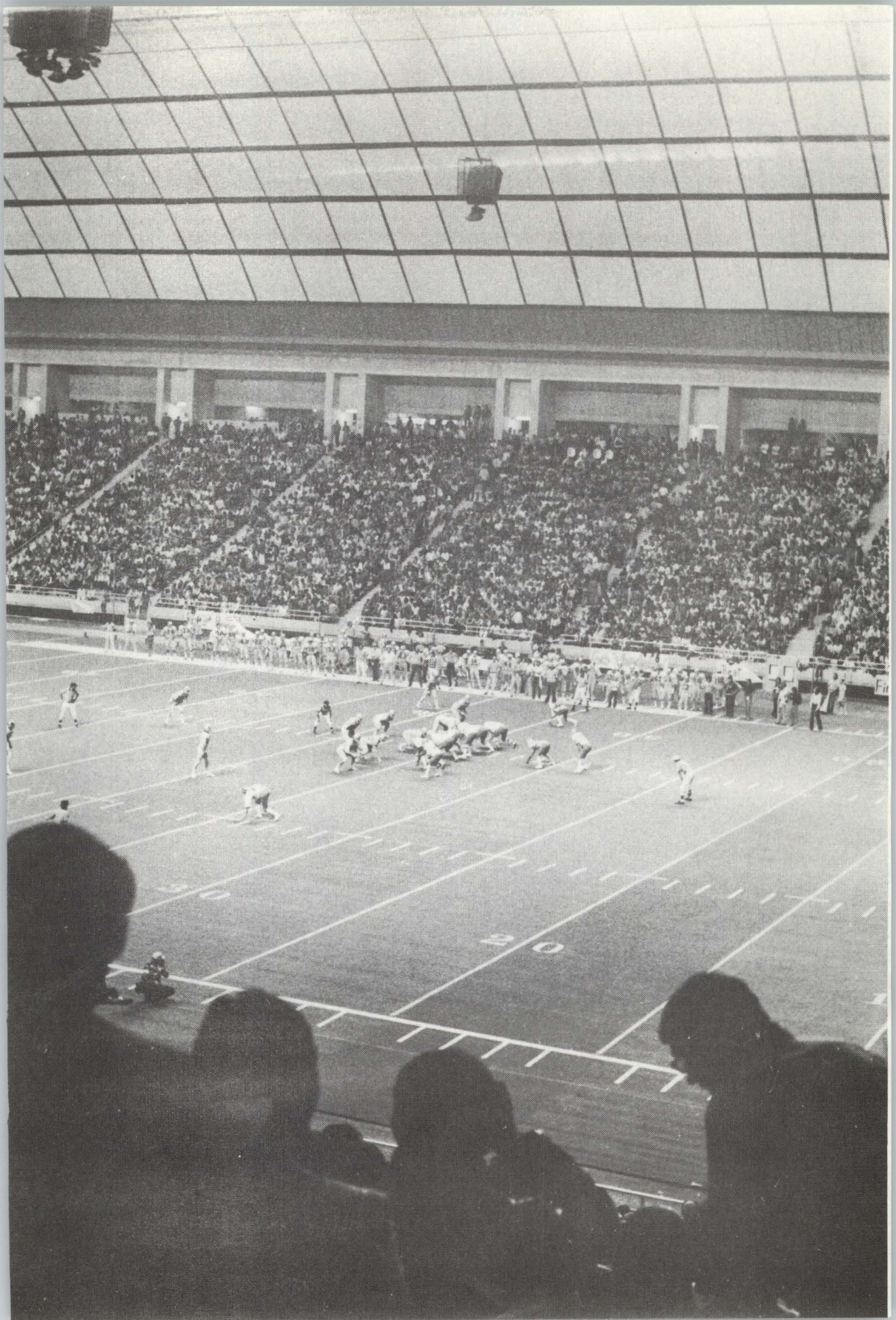
MARY V. ZAEHRINGER, 1953, Research Professor of Home Economics Research (Food Quality); Home Economist (Head, Department of Home Economics Research, 1953-1972); B.S., 1946, Temple; M.S., 1948, Ph.D., 1953, Cornell.

JACQUELINE R. ZAJANC, 1975, Head, Serials Department, University Library, with rank of Assistant Professor; B.A., 1967, M.L.S., 1972, California (Los Angeles).

*LENYCE ZENK, 1973, Affiliate Professor of Office Administration, INEL, Idaho Falls; A.B., 1948, Westmar; M.S., 1968, Utah State.

*HENRY R. ZIMET, 1975, Affiliate Professor of Veterinary Medicine, Moscow; B.S., 1944, D.V.M., 1945, Washington State.

*LEE F. ZIMMERMAN, 1948, University Librarian Emeritus; B.A., 1924, Wisconsin; B.S.L.S., 1929, M.A., 1932, Illinois. Emeritus since 1967 (now residing in Hendersonville, North Carolina).



Index

H

I

J-K

L

M

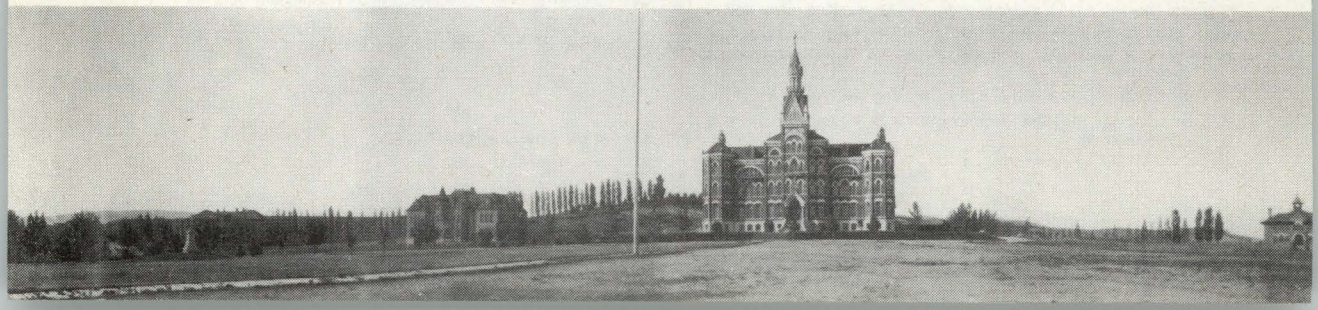
N

O

P-Q

R

S



T

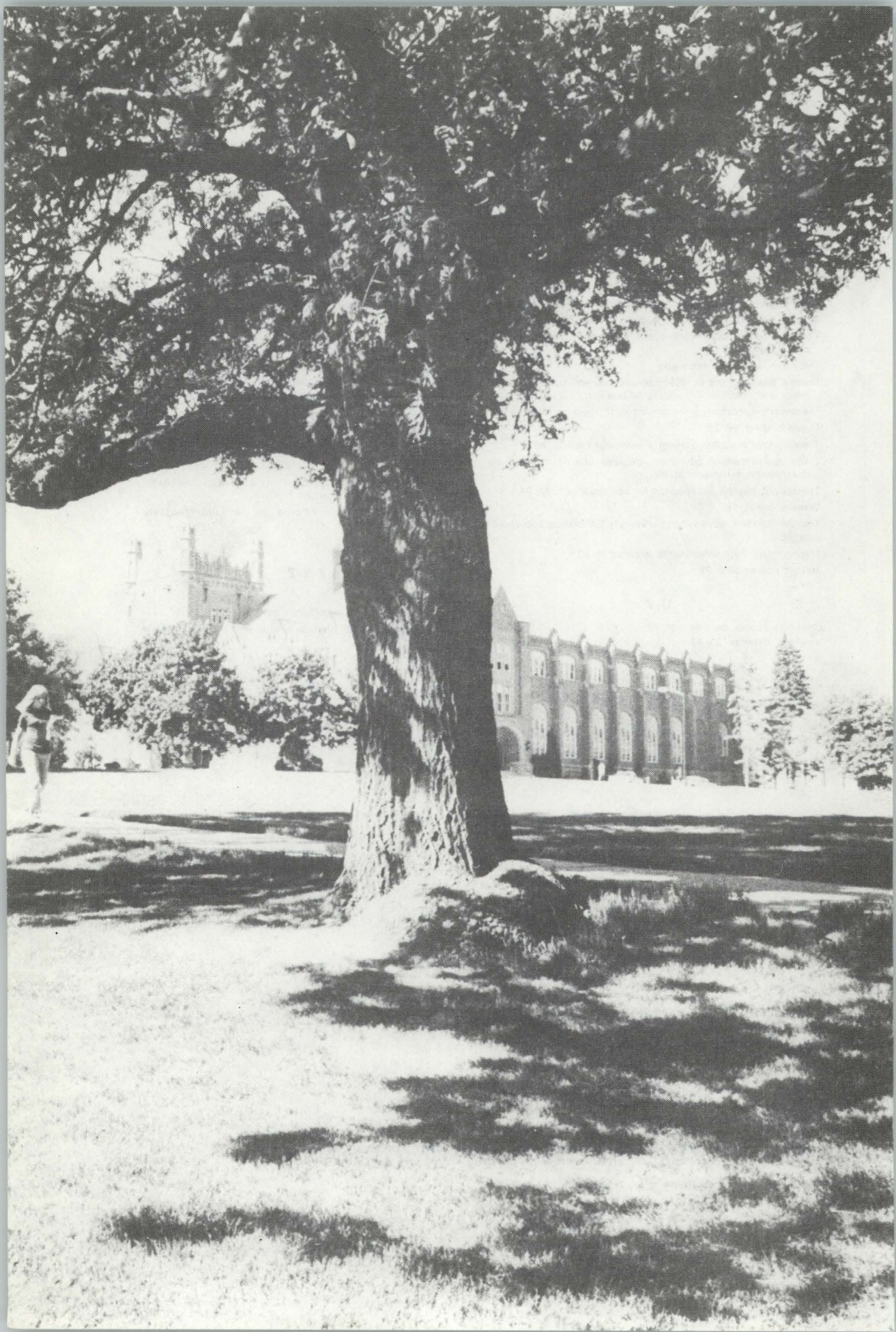
U-V

W

X-Y-Z

Facing page: Panaroma of the campus about 1905 (from the left) — horticulture building, memorial to students in the Spanish-American War, Ridenbaugh Hall, mines building (later, engineering building), administration building, and gymnasium (later, women's gymnasium, and presently Art and Architecture North).

Back cover: 1902 view of the campus.



University of Idaho

RECOGNIZED BY THE AMERICAN REVOLUTION
BICENTENNIAL COMMISSION AS A BICENTENNIAL CAMPUS