

UNIVERSITY OF IDAHO CATALOG



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CORRESPONDENCE DIRECTORY

UNIVERSITY OF IDAHO, MOSCOW, IDAHO 83843

TELEPHONE: (Area Code 208) 882-3511

For further information on the following subjects, address inquiries to the offices listed. For telephone calls, ask the University operator for the campus extension number.

Admissions Admissions Office (204 Ad. Office Bldg.)

Registration, General Information, Academic Regulations and Procedures Registrar's Office (104 Ad. Office Bldg.)

Academic Matters Dean, individual college or division

Counseling and Entrance Testing Student Counseling Center
(228 Univ. Classroom Center)

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Foreign Students Foreign Student Adviser (Office of Student Affairs, 228 Univ. Classroom Center)

Scholarships (Undergraduate) Chairman, Awards and Scholarships Committee (Office of Student Affairs, 228 Univ. Classroom Center)

Graduate Fellowships, Assistantships, and Financial

Aid Executive Officer, individual department in which the student plans to major

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On-campus Employment Personnel Office (208 Ad. Office Bldg.)

Student Activities Program Adviser, ASUI
(Student Union Bldg.)

Career Placemen Career Planning and Placement Center

Continuing Education (Correspondence and

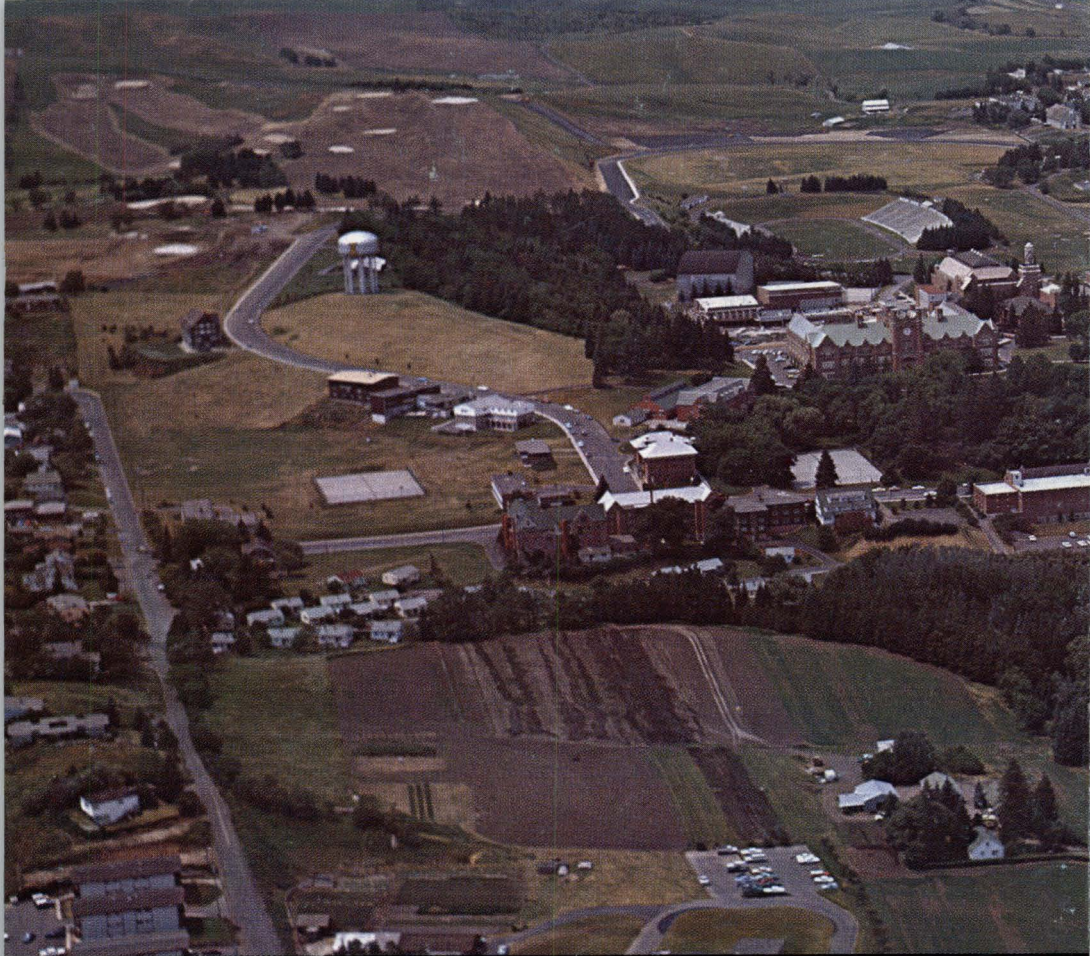
Extension) Coordinator, Continuing Education
(Adult Education Bldg.)

Summer School Director, Summer School (Adult Education Bldg.)

Study Abroad Department of Foreign Languages
(314 Admin. Bldg.)

Policy Matters President's Office (105 Admin. Bldg.)

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UNIVERSITY OF IDAHO



MOSCOW, IDAHO



The University of Idaho has a commitment to quality. That commitment is the most significant factor to the student who chooses to mold his career at the University. Success of Idaho graduates is testimony to the fact that the commitment has been carried out in the past. Faculty and staff join me in pledging that it will be carried out in the future.

Ernest W. Hartung
President



KEY TO MAP

1. Administration Building
2. Administration Office Building
3. Forestry Research Annex
4. Engineering Classroom Building
5. Life Science Building
6. Kirtley Laboratory
7. Johnson Engineering Laboratory
8. Student Union and Bookstore
9. Adult Education Building
10. Museum
11. Agricultural Science Building
12. Forestry Building
13. Agricultural Education
14. Dairy Science Building
15. Memorial Gymnasium
16. Music Building
17. Ridenbaugh Hall
18. Agricultural Engineering Building
19. Student Health Center
20. Home Economics Building
21. Small Animals Laboratory
22. Television Laboratory
23. Library
24. Mines Building
25. Women's Gymnasium
26. Physical Science Building
27. Home Management House
28. Information Center
29. University Classroom Center
30. Art and Architecture Building
31. Industrial Education Building
32. Buchanan Laboratory
33. Theophilus Tower
34. Women's Health Education Building
35. Education Building
36. President's House
38. Entomology Building
39. U-Hut
40. Faculty Club
41. Navy Building
42. University Classroom Building (Journalism)
43. Radio Building
44. Anthropology Building
45. Industrial Arts Building
46. Veterinary Science Building
47. Entomology Research Laboratory
48. Forney Hall
49. Hays Hall
50. Ethel Steel House
51. Vandal Hall
52. Willis Sweet Hall
53. Chrisman Hall
54. Campus Club
55. French House
56. Shoup Hall
57. McConnel Hall
58. Gault-Upham Hall
59. Blake House (Alpha Kappa Lambda)
60. Wallace Residence Center
61. Alpha Chi Omega
62. Alpha Gamma Delta
63. Alpha Phi
64. Delta Delta Delta
65. Delta Gamma
66. Gamma Phi Beta
67. Delta Sigma Phi
68. Kappa Kappa Gamma
69. Pi Beta Phi
71. Alpha Tau Omega
72. Beta Theta Pi
73. Delta Chi
74. (Now vacant)
75. Delta Tau Delta
76. Farmhouse Fraternity
77. Kappa Sigma
78. Lambda Chi Alpha
79. Phi Delta Theta
80. Phi Gamma Delta
81. Phi Kappa Tau
82. (Now vacant)
83. Sigma Alpha Epsilon
84. Sigma Chi
85. Sigma Nu
86. Tau Kappa Epsilon
87. Theta Chi
90. St. Augustine's Church
91. L.D.S. Institute
92. Campus Christian Center
93. Canterbury House
95. Park Village Apts.
96. South Hill Homes
97. Park Village Prefabs

THE UNIVERSITY

TEACHING

- 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 Letters and Science
- College of Mines
- Graduate School
- Division of Summer School and Continuing Education
- Reserve Officers' Training Corps

RESEARCH

- Agricultural Experiment Station
- Engineering Experiment Station
- Forest, Wildlife and Range Experiment Station
- Bureau of Business and Economic Research
- Bureau of Educational Research and Service
- Bureau of Mines and Geology
- Bureau of Public Affairs Research
- Special Research Program

SERVICE

- Agricultural Extension Service
- Educational Field Service
- Career Planning and Placement Center

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CONTENTS

1	General Information	9
	Admission to the University	17
	Expenses	24
	Student Housing	28
	Degrees Granted	33
	Majors and Programs Offered	35
	General Academic Regulations and Rules of Procedure	37

2	Academic Divisions	
	College of Agriculture	51
	College of Business and Economics	55
	College of Education	59
	College of Engineering	66
	College of Forestry, Wildlife and Range Sciences	72
	College of Law	80
	College of Letters and Science	85
	College of Mines	106
	Graduate School	113
Summer School and Continuing Education	128	
Reserve Officers Training Corps	132	

3	Course Descriptions	137
	(All subject fields arranged in alphabetical order)	

4	Agricultural Experiment Station	303
	Agricultural and Home Economics Extension	305
	Water Resources Institute	306
	Engineering Experiment Station	307
	Forest, Wildlife and Range Experiment Station	307
	Research Council and Research Foundation	308
	Bureau of Business and Economic Research	309
	Bureau of Educational Research and Service	309
	Idaho Bureau of Mines and Geology	310
	Bureau of Public Affairs Research	310

5	General Faculty and Staff	313
	Research and Advisory Councils	333
	Academic Standings and Association Affiliations	335
	Statistics	338

INDEX	347
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Calendar

1969

This calendar primarily governs academic activities. Announcements of holidays for administrative and operational personnel will be made in the Staff Letter at appropriate times during the year.

FIRST SEMESTER 1969-70

1969

Date for new faculty to report for duty (Wednesday)	Sept. 3
General faculty meeting (Friday)	Sept. 5
University residence halls open for all students (Saturday)	Sept. 6
Official opening date for first semester (Monday)	Sept. 8
Pre-registration conferences (Monday)	Sept. 8
Registration days (Tuesday and Wednesday)	Sept. 9-10
University classes begin (Thursday)	Sept. 11
Last day for graduate student registration without late reg. fee	Sept. 11
Last day for faculty-staff registration without payment of late reg. fee	Sept. 17
Last day for adding new courses for credit (Wednesday)	Oct. 1
Last day for changing course sections (Wednesday)	Oct. 1
Last day for removal of incompletes (Wednesday)	Oct. 1
Last day for change of study list without penalty for failing work (Wednesday)	Oct. 1
Mid-semester reports due (Monday, 1:00 p.m.)	Nov. 10
Thanksgiving holiday (Thursday and Friday)	Nov. 27-28
Last day for students to drop courses (Friday)	Dec. 5
Christmas vacation begins (Friday, 5:00 p.m.)	Dec. 19

1970

Christmas vacation ends (Monday, 8:00 a.m.)	Jan. 5
Field trips must be completed by (Monday)	Jan. 5
No classes (Wednesday)	Jan. 14
Final examinations (Thursday through Thursday, inc.)	Jan. 15-22
Intersession (Friday through Sunday)	Jan. 23-25

SECOND SEMESTER 1969-70

1970

Official opening date for second semester (Monday)	Jan. 26
Registration days (Monday and Tuesday)	Jan. 26-27
University classes begin (Wednesday)	Jan. 28
Last day for graduate student registration without late reg. fee	Jan. 28
Last day for faculty-staff registration without payment of late reg. fee	Feb. 3
Last day for adding new courses for credit (Tuesday)	Feb. 17
Last day for changing course sections (Tuesday)	Feb. 17
Last day for removal of incompletes (Tuesday)	Feb. 17
Last day to change study list without penalty for failing work (Tuesday)	Feb. 17
Last day for filing applications for 1970 baccalaureate degrees	Feb. 20
Last day for filing application for 1970 graduate degrees	March 1
Mid-semester reports due (Monday, 1:00 p.m.)	March 23
Spring vacation (Monday through Friday, Inc.)	March 23-27
Last day for students to drop courses (Friday)	April 17
Field trips must be completed by (Friday)	May 8
No classes (Thursday)	May 21
Final examinations (Friday through Friday, inc.)	May 22-29
Baccalaureate and commencement (Sunday)	May 31

SUMMER SCHOOL 1970

Forestry Summer Camp classes	June 1-July 24, inc.
Summer School opens (Monday)	June 8
Registration day (Monday)	June 8
University classes begin (Tuesday)	June 9
Last day for removal of incompletes (Friday)	June 26
Summer School closes (Friday)	July 31
Summer School Post Session	Aug. 3-14, inc.
Mines Surveying Summer Camp	Aug. 17-Sept. 4, inc.

Calendar

1970

This calendar primarily governs academic activities. Announcements of holidays for administrative and operational personnel will be made in the Staff Letter at appropriate times during the year.

FIRST SEMESTER 1970-71

1970

Date for new faculty to report for duty (Wednesday)	Sept. 9
General faculty meeting (Friday)	Sept. 11
University residence halls open for all students (Saturday)	Sept. 12
Official opening date for first semester (Monday)	Sept. 14
Pre-registration conferences (Monday)	Sept. 14
Registration days (Tuesday and Wednesday)	Sept. 15-16
University classes begin (Thursday)	Sept. 17
Last day for graduate student registration without late reg. fee	Sept. 17
Last day for faculty-staff registration without payment of late reg. fee	Sept. 23
Last day for adding new courses for credit (Wednesday)	Oct. 7
Last day for changing course sections (Wednesday)	Oct. 7
Last day for removal of incompletes (Wednesday)	Oct. 7
Last day for change of study list without penalty for failing work (Wednesday)	Oct. 7
Mid-semester reports due (Monday, 1:00 p.m.)	Nov. 16
Thanksgiving holiday (Thursday and Friday)	Nov. 26-27
Last day for students to drop courses (Friday)	Dec. 11
Christmas vacation begins (Friday, 5:00 p.m.)	Dec. 8

Math Jan 28 Thurs 8:00	Govt Jan 21 Th 8:00	Geol Jan 20 F 8:00	Psych Jan 25 Sat 8:00	lit Jan 26 Tues 8:00
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1971

Christmas vacation ends (Monday, 8:00 a.m.)	Jan. 4
Field trips must be completed by (Monday)	Jan. 4
No classes (Wednesday)	Jan. 20
Final examinations (Thursday through Thursday, inc.)	Jan. 21-28
Interession (Friday through Sunday)	Jan. 29-31

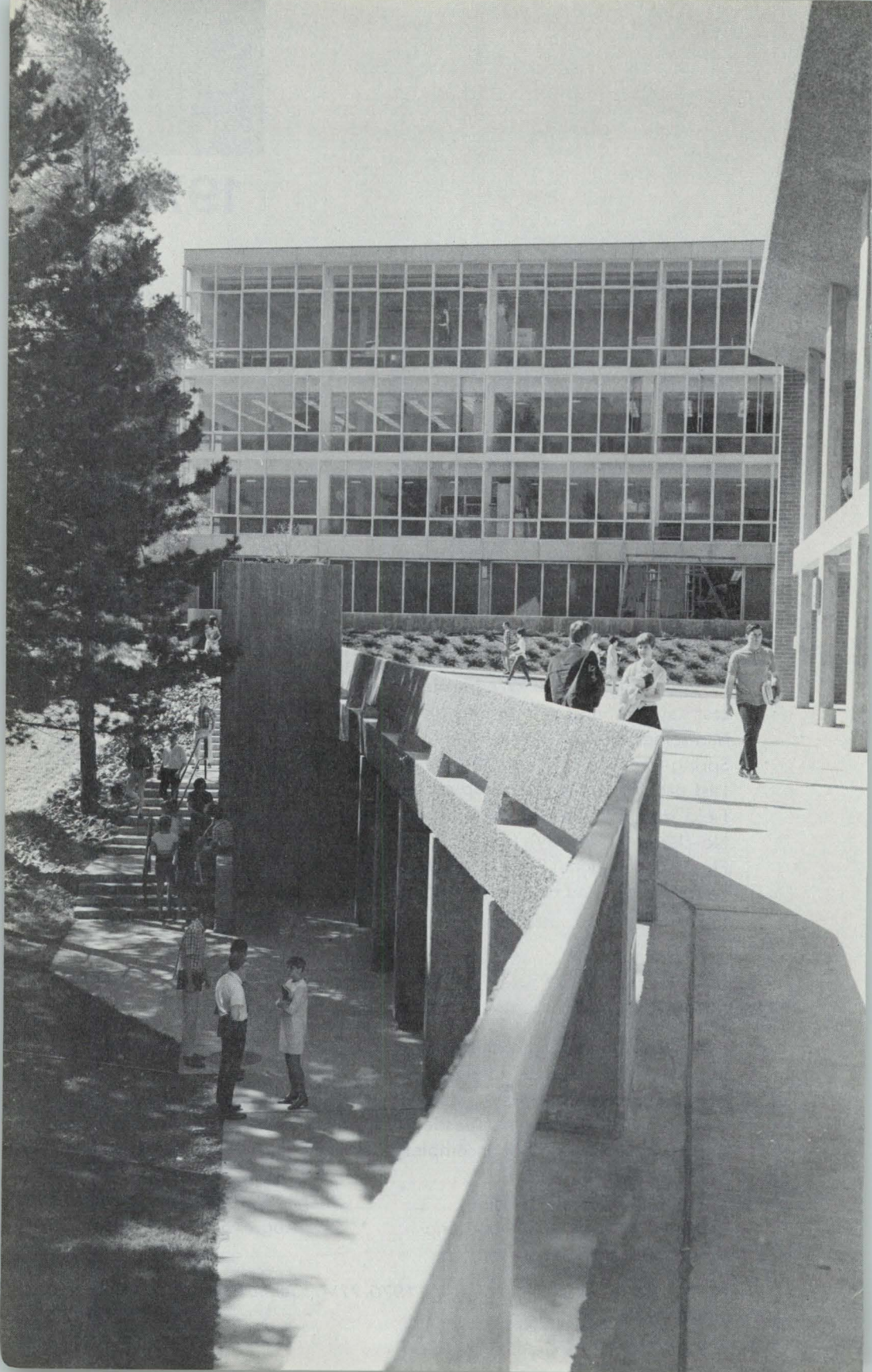
SECOND SEMESTER 1970-71

1971

Official opening date for second semester (Monday)	.....	Feb. 1
Registration days (Monday and Tuesday)	.....	Feb. 1-2
University classes begin (Wednesday)	.....	Feb. 3
Last day for graduate student registration without late reg. fee	.....	Feb. 4
Last day for faculty-staff registration without payment of late reg. fee	.....	Feb. 9
Last day for filing applications for 1971 baccalaureate degrees	.....	Feb. 20
Washington's Birthday (Holiday) (Monday)	.....	Feb. 22
Last day for adding new courses for credit (Wednesday)	.....	Feb. 24
Last day for changing course sections (Wednesday)	.....	Feb. 24
Last day for removal of incompletes (Wednesday)	.....	Feb. 24
Last day to change study list without penalty for failing work (Wednesday)	.....	Feb. 24
Last day for filing applications for 1971 graduate degrees	.....	March 1
Mid-semester reports due (Monday, 1:00 p.m.)	.....	March 29
Spring vacation (Monday through Friday, Inc.)	.....	March 29-April 2
Last day for students to drop courses (Tuesday)	.....	April 27
Field trips must be completed by (Friday)	.....	May 14
No classes (Thursday)	.....	May 27
Final examinations (Friday through Friday, inc.)	.....	May 28-June 4
Baccalaureate and commencement (Sunday)	.....	June 6

SUMMER SCHOOL 1971

Forestry Summer Camp classes	.....	June 7-July 30, Inc.
Summer School opens (Monday)	.....	June 14
Registration day (Monday)	.....	June 14
University classes begin (Tuesday)	.....	June 15
Last day for removal of incompletes (Friday)	.....	July 2
Summer School closes	.....	Aug. 6
Summer School Post Session	.....	Aug. 9-20, inc.
Mines Surveying Summer Camp	.....	Aug. 16-Sept. 3, inc.



1

GENERAL INFORMATION ADMISSION REQUIREMENTS EXPENSES — STUDENT HOUSING DEGREES, MAJORS, PROGRAMS ACADEMIC REGULATIONS

GENERAL INFORMATION

FOR THE GUIDANCE OF ALL STUDENTS

The provisions of this catalog are not to be regarded as an irrevocable contract between the student and the University of Idaho. The University reserves the right to change any provision or requirement at any time within the student's period of attendance. The University further reserves the right, at any time, to ask a student to withdraw when it considers such action to be in the best interests of the University.

THE UNIVERSITY OF IDAHO

"A friendly campus . . . an inspirational place for study . . . a university where the individual student is not dwarfed, but heightened . . . an institution where quality has not been sacrificed for quantity . . ." These are some of the ways the University of Idaho has been described. Perhaps the setting helps.

Located in an attractive, mountain-fringed town of 14,000 population, the University campus is considered one of the West's most beautiful. More than a hundred buildings dot the 1,200 acres of rolling hills which make up the picturesque campus paths. It is a memory stored for years to come just to stroll up Hello Walk, listening to the David Memorial Carillon chiming from the Gothic tower of the ivied Administration Building.

At Idaho, students get to know their neighbors well through group living, group

social exchanges and intramural activities. There are nine residence halls for single men and six for single women, eighteen fraternity houses and nine sorority houses. In addition, the University maintains a total of 137 apartments and small houses for married students. All the campus housing units are within easy walking distance of classrooms.

The University of Idaho is large enough and diversified enough to sustain a true university atmosphere, but it still maintains the personal relationship that should exist between every student and his university. The University welcomes the serious consideration of all who are giving thought to the preparation they need to live a rich and effective life.

The University was founded in 1889 by the Territorial Legislature at Moscow because "it (Moscow) is the center of one of the richest and most populous agricultural sections in the entire Northwest, and is surrounded by a healthy moral atmosphere, and in a community, the wealth of which rests upon a foundation that can not be shaken by the vicissitudes of booms, excitement or speculation." The charter, which was made a part of the State Constitution, stipulates that the University shall provide tuition-free education (fees may be assessed) to residents of the State.

The first institution in the State to grant a college degree, the University of Idaho is also the State's largest institution of higher learning. Enrollment of resident students set a new record of 6,342 in the fall of 1968-69. About 70,000 resident students have attended the University. Training provided leads to bachelor, master and doctoral degrees.

(Continued on next page)

FINANCIAL AID

The University assists qualified students who need financial aid to meet the normal costs of college attendance by helping them secure part-time employment, loans, scholarships, and grants. A special bulletin, *Financial Aids*, containing detailed information on currently-available scholarships and other programs is available from the Office of Student Affairs, University of Idaho, Moscow, Id. 83843.

Among the forms of financial aid which may be obtained by applicants are the following.

Scholarships

Economic Opportunity Grants (Higher Education Act)

Student Loans

- National Defense Education Act Loans
- Federally-Insured Loans
- United Student Aid Funds, Inc.
- University Loan Funds
- Private Loan Funds

Part-Time Employment

- University Employment
- College Work-Study Program
- Employment in the Community and Area

Applications for most scholarships must be submitted by March 1 of the preceding school year. In a few instances an earlier filing date is indicated in the description of scholarships contained in the financial aids bulletin mentioned above. No cut-off date is presently being used for financial aid applications other than for scholarships; however, early application is strongly recommended as funds available are limited.

Enrollment at the University has climbed steadily throughout the years. Out-of-state enrollment is limited to about 20 per cent of the student body. Nevertheless, the University draws students annually from more than 40 states, and from about 30 foreign countries. During the 1968-69 academic year, all 50 states of the Union were represented.

The University has eight colleges—Letters and Science (liberal arts), Agriculture, Engineering, Law, Mines, Forestry, Wildlife and Range Sciences, Education, and Business and Economics, and a Graduate School. Military training may be taken at the University, if the student desires, in any of the three branches of the Armed Forces. The University has ROTC units of the Army, Navy (including Marines) and Air Force. As a land-grant school, the University maintains agricultural experiment stations in various sections of the State—at Moscow, Teton, Aberdeen, Twin Falls, Caldwell, Parma, Lewiston and Sandpoint.

Since 1905, when the University of Idaho became the first university in the Pacific Northwest to adopt four years of high school training instead of three as an entrance requirement, the institution has stressed quality education. It has unrestricted accreditation from the Northwest Association of Secondary and Higher Schools.

The George Peabody College Survey Commission, comparing the University of Idaho with the major universities and colleges of the Middle West, ranked it among the upper 10 percent of those schools. Commendation has come from the U. S. State Department. Thirty-seven percent of Idaho's students taking examinations for Foreign Service passed the tests, although the national institutional average is only 5 percent.

The University of Idaho has been ranked second in the nation for the percentage of chemistry graduates continuing studies for doctoral degrees. Engineering graduates in the Army gave their alma mater an eighth place rank among 72 universities and colleges. A report issued by the Army Engineer School at Fort Belvoir, Virginia, showed that the average grade made by the University of Idaho graduates at the Army school topped that of graduates of 64 other institutions.

The University is just as interested in helping the student get a good job as it is in helping him become well-qualified for that job. The Western College Placement Association gave a top-third ranking to the University of Idaho Placement Service for efficiency and effectiveness in a survey conducted among the services of 61 Western universities and colleges.

MISSION

Founded as a co-educational, land-grant institution by an act of the fifteenth, and last, session of the Territorial Legislature, the University of Idaho has the distinction of being eighteen months older than the State itself, which was admitted to the Union July 3, 1890. The University, together with all other public schools of the State, is administered by the State Board of Education and Board of Regents of the University of Idaho.

Since its founding, the University has had three functions: (1) to train the State's future citizens to their highest usefulness in private life and public service; (2) to conduct research in all fields that promise to assist in development of the State's resources; and (3) to carry the fruits of that research and University service to all parts of the state.

Through its many research and service agencies, the University extends technical and professional services to every community of the State, and reaches thousands of individuals through agricultural extension, continuing education, summer school, and special short courses. University credit courses by correspondence extension are available through the administration of Idaho Continuing Education.

As the research center of the State, the University of Idaho has more than 600

research projects in progress. On the farms and livestock ranges, in the forest and the mines, on the highways and in the industries of the State, University research has contributed greatly to Idaho's progress.

THE LIBRARY

The vital center of the much-stressed quality education sought by the University is its library of books and documents totalling more than 600,000 volumes. Objectives stressed by the University are teaching, research, and service. The Library makes its unique contribution in all three areas. By way of teaching, it offers special instruction — group and individual — in elementary and advanced techniques of bibliographic search. Its support of research lies in its rapidly growing collections, to which it contributes the uncommon interpretative skills of its experienced and expertly-trained subject librarians (in humanities, social science, and science/technology).

The University Library is housed in an air conditioned building, completed and occupied in 1957, which provides optimum study conditions. The collection consists of over 640,000 volumes including the Law Library's 37,000 volumes. Approximately 25,000 volumes are added annually. The Library receives nearly 6,000 serials and 125 newspapers. Its U.S. Government documents collection of over 250,000 volumes and the collection of 50,000 maps are among the strongest in the Northwest. The University Library is the regional depository in Idaho for U.S. Government documents. As a member of the Pacific Northwest Bibliographic Center located in Seattle, it has access to the collections of other scholarly libraries within the region.

The Library's special collections include rich holdings in Northwest Americana, State and University documents and archives, Sir Walter Scott, fine bindings, and Basque materials.

The subject librarians administer three open-stack divisional libraries which have been organized to conform closely with the pattern of the academic divisions. The open-stack libraries, typing rooms, study carrels, microfilm room, and other features have attracted wide attention and make the Library one of the finest agencies of its kind.

Among its many services the Library provides coin-operated electric typewriters (ten cents per twenty minutes) in the typing rooms for those who wish to take notes and do not have a typewriter of their own. Also, three photocopy machines are available for those who wish permanent copies of needed library materials.

THE MUSEUM

The University of Idaho Museum exists to serve the campus, the region, and the State in all fields. It is not attached to any of the colleges, but is an all-university service administered by the President's Office. Its role is to teach, using objects, with no limitations as to subject field.

A busy schedule of changing, temporary exhibitions is maintained throughout the year except during University vacation periods. The museum is open to visitors seven afternoons per week. Recent exhibitions have dealt with biology, geology, anthropology, history, mathematics, nuclear physics, architecture, sculpture, music, theater, and a wide range of the graphic arts from this country and abroad.

Students, alumni, employees, and other friends of the University of Idaho can help to build its collections of scientific, historic, and artistic objects by calling the museum director's attention to significant, available materials.

CAREER PLANNING AND PLACEMENT CENTER

The Career Planning and Placement Center is the central contact agency between all colleges of the University and employers. The center is organized to assist all University of Idaho graduates in obtaining employment according to their training, ability, and experience.

At specific times throughout the year business, government, industry and education 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.

It is the purpose of this center to serve the state, region, and nation by providing adequately trained personnel from all industrial and governmental groups as well as schools, public and private, from kindergarten through graduate school.

This service is available to all students purposefully identified with programs of study at the University of Idaho and who are sufficiently well-known to faculty members to be worthy of their recommendations. Normally, the services are open to all students and alumni who have completed two semesters of accredited study in upper division or graduate work at the University of Idaho or will have completed such work by the time placement information is to be utilized. The initial contact with the Career Planning and Placement Center must be made by the student. All candidates desiring the use of this service should obtain the necessary registration forms during the first semester of his senior year. There is no charge for this service.

STUDENT PERSONNEL SERVICES

The Office of Student Affairs is responsible for the overall administration and coordination of the various programs and services which contribute to the general welfare and out-of-class life of University of Idaho students. Included in these programs are the following activities: counseling services; health services; financial aids in the form of student loans (in cooperation with the Business Office) and emergency loan funds; scholarships and awards; advisory services for residence halls and fraternities and sororities; coordination of the administrative/management aspects of the Student Union and programs carried on by student government known as Associated Students of the University of Idaho.

Counseling Services

Contact with Idaho High School Seniors. Faculty and staff members from the University under arrangements made by the director of admissions visit Idaho high schools and provide Idaho high school seniors with general information about the University of Idaho and counsel with them concerning their college plans. This program is accomplished in several ways: discussion with individual seniors and their parents; conferences with senior classes; use of audio-visual materials; dissemination of information through printed bulletins.

Counseling Services for High School Seniors. The services of the University Student Counseling Center, located on the campus, are available without charge to those high school seniors who are planning to enter the University of Idaho. Through participation in a program of testing and individual conferences, the prospective college student can make more realistic plans for his college academic major and the selection of his vocational goal. This counseling program for students not yet enrolled in the University can best be handled during the summer months and individuals desiring the use of the service should make arrangements at least two weeks prior to the time they wish to come to Moscow. Requests for counseling appointments should be addressed to the director of counseling services.

College Student Counseling. The guidance services provided in the Student Counseling Center are available to all students in the University. Full-time counselors

devote their efforts to the job of assisting individual students in thinking through and solving their problems related to choice of vocational objective, personal problems, and adjustment in the academic program. The scores received from the national entrance and placement testing programs are kept on file here and are utilized in counseling with students concerning their educational and vocational plans. Additional tests of special aptitudes, reading skills, and interests may also be administered according to the needs of the student. In addition to these specialized counseling services, there are faculty members in each division who devote part of their time to academic advising and curricular planning with the student.

Fraternities and Sororities — See page 32.

Student Health Services

The following medical services are available to each regularly enrolled student in residence at the University during the regular school year (except vacation periods): advisory and consulting services concerning problems of physical and mental health; treatment at the clinic during regular clinic hours for most illness and most injuries; limited surgery; hospitalization for most illnesses.

A portion of the regular semester fee charged each student enrolled for more than six hours is allocated to the support of the Student Health Center. Facilities, including a modern 70-bed hospital and an out-patient clinic are staffed by three full-time physicians, a part-time psychiatrist, six graduate nurses, and a laboratory—x-ray technician. Services cover practically all types of treatment except the following: major surgery, major fractures, examination and care by specialists where indicated, special drugs and certain x-rays. Students are entitled to hospitalization for a period of seven days in any one semester. If hospitalized for more than seven days in the University hospital in any one semester, a fee of \$3 per day is charged. The right is reserved to assess charges for more than normal services provided any student in any semester.

There is available an optional student health and accident insurance policy which is designed to supplement the services provided through the Student Health Center (see below).

A completed physical examination must be filed as part of the procedure for admission to the University. This physical examination is required of each new student entering the University. University physicians do not give entrance physical examinations or physical examinations to students who must have such to qualify for jobs. However, the medical staff does give other physical examinations if such are required by the student's University program.

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 services provided by the Student Health Center described above. This coverage is designed to offset expenses resulting from a major accident or serious illness which might require medical care, hospitalization and/or surgery beyond services provided through the Student Health Center. This student accident and health insurance plan provides coverage for the entire 12-month period, whereas Student Health Center services are available only during the time the University is in session. A brochure describing this plan may be obtained by writing: Office of Student Affairs, University of Idaho, Moscow, Idaho 83843.

Special Awards

Many awards are made each year in recognition of outstanding achievement

in both academic and non-academic pursuits. The listing of specific awards and recipients is included in the commencement program published each year. A detailed description of each award may be obtained from the Office of Student Affairs.

Part-Time Employment

The University of Idaho maintains a program to assist students in finding part-time employment while they are on the campus. Preference is given to students who have a definite financial need. New students are advised to come prepared to meet all expenses for the first year since the academic program for most freshmen is so time-consuming that sufficient time is not always available for part-time employment unless a reduction is made in the individual's academic load. The University cannot guarantee any student a part-time job. In most cases part-time job placements cannot be made before a student actually arrives in Moscow. The students who find it necessary to earn money while attending the University should complete registration and then contact the Non-Academic Personnel Office for part-time work. Information concerning class schedules, aptitude, and type of work is obtained and kept on file in the Personnel Office.

The University of Idaho participates in the College Work-Study Program under Title I, Part 6, of the Economic Opportunity Act of 1964. Under this program, students who qualify both with respect to a definite and demonstrable financial need and academic potential may obtain part-time employment to a maximum of 15 hours per week. Further information about opportunities under the College Work-Study Program at the University of Idaho may be obtained by writing the Business Office, University of Idaho, Moscow, Idaho 83843.

Recreational, Social, and Extracurricular Activities

Many opportunities are available on the campus for recreational activity. The Student Union is the social and recreational center for the University community. The new student soon learns that the Union building can be useful in more ways than just selling a cup of coffee. The Student Union provides many facilities for use of students, including bowling alleys, billiard tables, music listening rooms, arts and crafts room, cafeteria and snack bar, ball room, meeting and banquet rooms and student government offices.

In addition to the many facilities available in this building, the Activities Council offers a variety of programs for leisure hours in the Student Union Building. Informal dances, art exhibits, speakers and forums, weekend movies, bridge, square dancing, recorded concerts, and games tournaments are among the numerous activities available.

The Associated Students is the student government organization to which every regularly enrolled student belongs. Through their ASUI (Associated Students of the University of Idaho) membership, students are eligible to participate in a variety of activities. The twice-weekly campus newspaper, *The Idaho Argonaut*, and the yearbook, *The Gem of the Mountains*, offer opportunities for those interested in journalism or photography. In addition to the opportunity for participation in music groups such as the concert choir, symphony orchestra, wind ensemble, concert band, marching band, University singers, and opera workshop, students may attend the community concerts in Moscow and Pullman which feature seven or eight outstanding musical events each year. Under the direction of the Department of Dramatics, a number of theatrical productions is presented each year providing opportunities for both acting and production experience. There are opportunities for participation in radio broadcasting through KUOI (AM and FM). Through its membership in the Pacific Coast Forensic League, the University sponsors a full debate schedule. Each year a number of outstanding nationally known speakers is brought to the campus by the Public Events Committee.

A large proportion of University of Idaho students who are single live on the campus in residence halls, sororities and fraternities. Each of these living groups carries on a program of exchange dinners, firesides, dances and other social affairs.

Well-rounded varsity athletic and intramural programs are available to all who wish to participate. There is collegiate competition in the Big Sky Conference in football, basketball, baseball, track, tennis, swimming, golf, cross country, skiing and wrestling. There is a strong intramural athletic program under the direction of the Department of Physical Education and more than two-thirds of the student body, both men and women, participate in this year-round intramural program which covers 15 sports. The Women's Recreation Association provides for participation and competition for all women in a wide range of intramural sports and activities, and in a number of extramural sports. The ASUI maintains an excellent eighteen-hole golf course adjacent to the campus. Many other recreation facilities are available on the campus, including tennis courts, which are lighted for night play, bowling alleys, out-door handball courts, and a swimming pool. There is a number of skiing facilities located a relatively short driving distance from the campus.

Student Organizations

University of Idaho students are free to 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 organizations, together with names of the current officers, is maintained and information concerning these may be obtained from the Office of Student Affairs. The annual publication of the ASUI (Associated Students of the University of Idaho) *Student Handbook* contains a description of current student organizations.

Religious Activities

Religious Development. All of Moscow's churches provide opportunities for religious development for University of Idaho students. Besides the usual services of worship and church school classes, most of the churches maintain student centers and staff for carrying out a ministry to the University community. Those denominations which maintain offices and campus ministry staff at the Campus Christian Center, 822 Elm St. are: American Baptist, Church of the Brethren, Christian Church (Disciples of Christ); Lutheran Church in America; American Lutheran Church; Lutheran Church — Missouri Synod; Church of the Nazarene; United Church of Christ; United Methodist Church; and the United Presbyterian Church. In addition, St. Augustine Catholic Center (Roman Catholic) corner of 6th and Deakin; the L.D.S. Center (Mormon), and Canterbury House (Episcopal) provide excellent facilities for student religious activities. Those without a campus office but with a ministry offered are: Baptist Student Union (Trinity Baptist); Christian Science College Organization; Channing Club (Unitarian) Interservice Christian Fellowship, and Regular Baptist Fellowship (Grace Baptist).

Theolog Theolog is a committee of the ASUI which arranges programs and occasions for consideration of religious issues of current interest to students. The object is not to treat any one religion favorably or unfavorably, but to enable students to become better acquainted with the role of religion in life and how it affects events, situations, and people.

ALUMNI ASSOCIATION

The Alumni Association, University of Idaho, is composed of all graduates and former students. In addition, honorary members may be elected periodically in recognition of service rendered by them to the University and to education and progress of the State as a whole. The Alumni Association honors six of its

outstanding graduates each year through the Alumni Hall of Fame. Their pictures and accomplishments are displayed in an appropriate place in the Student Union Building. "The object of the Association shall be to cultivate and maintain good fellowship among its members; to foster a general interest in the welfare and support of the University of Idaho; to own property and do the necessary business in regard thereto; and to develop a constructive program for the building of a greater University with each succeeding year."

There are in excess of twenty-five alumni groups and there is now more or less detailed information on over 40,000 graduates and former students. It is estimated that there are still over 10,000 yet to be located. For the first time an effort is being made to organize active alumni groups outside the boundaries of the State of Idaho.

The activities of the association are under the direction of a full-time alumni secretary and a board of directors of fifteen members, elected from the principal sections of the State of Idaho and eastern Washington. Work is being done on a revision of the constitution to update it to more clearly fit our present operations. Included will be representation from other geographical areas.

The University of Idaho Alumni Association has an alumni fund from which money for operation of the association activities, pertaining directly to alumni themselves, is derived. Included in this is the alumni scholarship fund from which cash scholarships are available each year from the earnings of monies, stocks, bonds, and other gifts, received through the alumni fund. The recipients of this award must be a son or daughter of an Idaho alumnus or alumna. Information on these scholarships may be obtained by writing to the alumni secretary at the University.

ADMISSION TO THE UNIVERSITY

STUDENTS ENTERING THE UNIVERSITY for the first time should write to the Admissions Office and request an admission folder. This publication gives detailed information concerning procedure on admission.

FINAL DATES FOR MAKING APPLICATION FOR ADMISSION

To be assured of admission to the University of Idaho for the first semester of each year, applications for admission must be filed in the Admissions Office on or before August 1.

All academic credentials should also be on file by the above date so that permission to register may be sent to the applicant before registration days.

For the second semester, final date for receiving applications is January 15.

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 determined by our ability to accommodate such students in the division in which they wish to register.

PROCEDURES FOR APPLYING FOR ADMISSION

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

Students are classified as graduates and undergraduates. Undergraduates are classified as regular students (freshmen, sophomores, juniors, and seniors)

and special students. For the admission status of graduate students see Graduate School in Part II.

Credentials. Students applying for admission to the University are required to furnish credentials as follows:

- (a) Personal data on the regular application-for-admission blank. Failure to list on the application blank all institutions attended is considered fraud and subjects the applicant to immediate cancellation of registration by the registrar.
- (b) An official signed transcript of high school credits to be sent direct to the University by the principal.
- (c) Official transcripts and statements of honorable dismissal to be sent direct to the University from each institution attended after high school graduation.
- (d) Blanks for furnishing personal data and high school records may be obtained on application to the Admissions Office. University, college and other collegiate level school records should be furnished on the transcript blank of the institution at which the study was taken. All transcripts must be official. They must be signed by the registrar, superintendent, principal, or some other official of the school and mailed by him directly to the Admissions Office, University of Idaho. Transcripts will not be accepted from the student. *Prompt attention to these details will avoid delay in registration and the additional expense of telegraphing.*
- (e) Each new student (either freshman or transfer) entering the University for the first time is required to file with the University a complete physical examination report. This report must be filed before registration is considered complete. This physical examination should be accomplished by the individual's physician before coming to the University and special forms are provided by the University for this purpose. If the required physical examination is not completed before coming to Moscow, the new student may obtain this examination from a local physician. *University physicians do not make entrance physical examinations.* The University may require other or further physical examinations if deemed necessary.
- (f) All new non-resident undergraduate applicants are required to pay a fee of \$25 for application for admission to the University for on-campus study. The fee is not refundable once the application has been officially filed with the University Admissions Office and is charged for review of credits and other services.
 1. If the applicant is not accepted for admission by the University, the sum of \$20 will be returned to the applicant.
 2. If the applicant is accepted by the University, the sum of \$25 will be applied as partial payment on the non-resident tuition for the semester for which the student has applied for admission. If the student, once admitted, does not enroll at the University for the particular semester for which he has applied for admission, thereafter no credit on tuition or any refund will be available.
- (g) A letter of acceptance and a physical examination report form will be mailed to applicants whose credentials have been accepted. A permit-to-register will be among the registration materials furnished the applicant by his dean on the first day of registration.

ADMISSION REQUIREMENTS

Entering Freshmen

1. Each applicant for admission to the freshman class is required to have the scores attained on the College Entrance Examination Board examinations sent to the Admission Office to become a part of his permanent file. These tests must include The Scholastic Aptitude Test, the English Achievement Test, and two other achievement tests. (If mathematics is basic to his curriculum the mathematics examination should be selected.) Those applicants not presenting test scores at the time of admittance will be granted provisional acceptance if otherwise qualified, and will be required to take the CEEB test on a designated date to complete formal admission. A late testing fee will be charged. Scores attained on the ACT may be submitted in lieu of CEEB scores.
2. **Early admission** will be granted at the end of seven semesters of high school study if the applicant is otherwise qualified for admission. Applicants seeking early admission should have the high school principal send a transcript of seven semester's study directly to the Admissions Office. Transcripts cannot be accepted directly from the applicant. Early admission will be validated if upon receipt of a final transcript, the applicant continues to meet admission requirements as they apply to him.
3. Residents of Idaho who are graduated from an accredited high school are admitted upon receipt of a formal application, a high school transcript and CEEB or ACT test scores.
4. Out-of-state (non-resident) applicants, applying directly from high school, are selected from those who are graduated in the upper one-third ($1/3$) of the scholastic ranking of their graduating class.
 - (a) Applicants in the upper $1/2$ but below the upper $1/3$ will be referred to the Admissions Committee for recommendation and action.

Transfer Students

1. Transfer students must, in addition to having a high school transcript submitted, request the registrar of all colleges attended to send a transcript of all studies pursued to the Admissions Office. Note: **TRANSCRIPTS SUBMITTED IN SUPPORT OF AN APPLICATION MUST BE SENT DIRECTLY TO THE ADMISSIONS OFFICE BY THE ISSUING INSTITUTION. THEY BECOME THE PROPERTY OF THE UNIVERSITY AND CANNOT BE RETURNED.**
2. Resident transfers who have a minimum cumulative grade point average of 2.00 (C) for all level college study attempted in all colleges attended exclusive of courses in which grade points are not allowed will be automatically admitted upon proper application.
3. Non-resident transfers who have a minimum grade point average of 2.30 (on a four point system) for all college level study attempted in all colleges attended exclusive of courses in which grade points are not allowed will be automatically admitted upon proper application, if space is available. Applicants who have a grade point average of between 2.00 and 2.30 will be referred to the Admissions Committee for recommendation and action.
4. Transfer students presenting fewer than twenty-six (26) semester hours of college credit are required to comply with test requirements as they apply to entering freshmen.

Requirements for admission without deficiency to the various divisions of the University are shown in the table below.

HIGH SCHOOL UNITS IN	COLLEGES OF THE UNIVERSITY						
	Letters & Science	Agriculture	Engineering	Mines	Forestry	Education	Business
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		1
Advanced Algebra		½	1	½	1		
Trigonometry			½ ⁽²⁾		½		
Other			½	½ ⁽³⁾		1	
Natural Science (Unspecified)	2	1	1	1 ⁽⁴⁾	0 ⁽⁵⁾	2	2
Biology					1		
Chemistry			1		1		
Physics		1	1	1 ⁽⁶⁾			
Unspecified Academic Units	2	1½		1	½	2	2
Total Academic Units	11	11	12	11	11	11	11
Additional Academic, Vocational or Elective Units	4	4	3	4	4	4	4
Total Units Required	15	15	15	15	15	15	15

1. Or the equivalent, because high schools offering modern mathematics programs may have course names that differ from the traditional ones yet contain equivalent material.
2. Students deficient in the mathematics area may remove the deficiency at the University.
3. One-half unit of either advanced algebra, trigonometry, or solid geometry (in this order of preference) is required.
4. Chemistry strongly recommended.
5. Physics strongly recommended.
6. One unit required for mining, metallurgical or geological engineering, but not required for geography where two units of natural science (unspecified) are required. Biology may be taken instead of physics for the paleontology option in geology.

DEFINITION OF UNITS

A "unit" represents a high school subject taught five times a week in periods of not less than 40 minutes duration (laboratory 80), for a school year of at least 36 weeks. A certificate of secondary school record should be filled out and signed by the superintendent, principal, or other official of the school in which the work was done. It should show the length of each course in weeks, the number of recitations a week, the length of each recitation, and the grade of scholarship attained, including a record of all failures and conditions. All certificates accepted toward admission to the University become the property of the University, and are permanently filed among its records. They cannot be returned to the student.

Academic units shall be defined as English (composition and literature), foreign language, mathematics and social science, and natural science.

Elective units may be taken from the academic subjects named as well as from vocational and other subjects commonly given in high schools, except that no credit will be given for the following:

- (a) Spelling, penmanship, reviews, project work unless in conjunction with regular courses, and work which primarily is of the nature of extracurricular activities.
- (b) Less than one year in a foreign language, shorthand, typewriting, or bookkeeping.
- (c) Less than one-half unit in any subject.
- (d) More than one unit in each of physical education and military drill.

In cases of graduation from three-year high schools, units earned in the ninth grade in junior high are included in the 15 required and acceptable units.

ADMISSION WITH DEFICIENCIES

Admission With Deficiencies In Group Requirements. Students admitted to the University with 15 acceptable units, who present the specified number of academic units but are deficient in academic group requirements may make up the deficiency by college courses and without loss of college credit. Entrance deficiencies should be made up before the beginning of the sophomore year. Students who enter the College of Engineering or Mines with a deficiency in plane geometry may make it up in a non-credit residence course offered at the University or by correspondence.

ADMISSION OF NON-HIGH SCHOOL GRADUATES

By Recommendation. Students from accredited secondary schools who have completed 15 acceptable units in an accredited 4-year high school or 12 acceptable units in an accredited 3-year senior high who are in the upper one-half of the scholastic ranking of their class, but have not graduated, may be admitted upon special written recommendation of the principal.

By Examination. Applicants for admission who have graduated from non-accredited high schools and resident non-high school graduates over 21 years of age and veterans who do not meet admission requirements may be admitted to the University as regular students upon satisfactory completion of suitable tests selected by the University. Persons to whom this provision applies should write to the Admissions Office for detailed information and should have all available credentials regarding their previous study sent to the Admissions Office.

This regulation does not pertain to students transferring from accredited institutions of higher learning who have completed 30 or more semester hours of study with a satisfactory scholastic average. These students will be admitted to the University with the provision that they will be required to make up any high school deficiencies and/or foundation training which might be required by the dean of the division in which they register.

ADMISSION WITH ADVANCED STANDING

Students who have completed study in other universities or colleges which have been accredited by one of the regional accrediting agencies associated with the National Committee of Accrediting Agencies of the United States, and have satisfactorily scholastic records may be admitted to advanced standing.

These students must have the following credentials sent direct to the Admissions Office of the University of Idaho: a certificate of secondary school record giving full information regarding the applicant's high school record, and separate transcripts from each of the institutions attended. These should be sent direct to the Admissions Office by the issuing institutions at least one month before the

student expects to enter the University. Transcripts from other institutions cannot be given to the student or be forwarded to another institution.

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

From Normal Schools. Students from approved normal schools who present a satisfactory scholastic record are allowed credit for work which corresponds to University courses and given a class standing according to the number of their credits which may be applied as required or elective credits in the curriculum chosen.

From Junior Colleges. By action of the State Board of Education and the Board of Regents of the University of Idaho, in accordance with Idaho statutes, the acceptance of credits from junior colleges is to be uniform for both certification and transfer purposes effective September 1, 1950.

This action provides that after a student has attained full junior standing by the completion of 64 semester hours (96 quarter-hours), or one half of the total credit requirements for a specific degree curriculum at any institution or institutions, he may not transfer for credit to the University of Idaho subsequent work taken at a junior college.

ADMISSION AS SPECIAL STUDENTS

A special student is an undergraduate who comes to the University of Idaho solely to secure credit for transfer back to another institution. Special students are admitted without filing all of the credentials required of students working for a degree from the University of Idaho. They must, however, have the institution last attended SEND DIRECTLY to the Admissions Office a transcript including (a) honorable dismissal (b) total credits; and (c) comply with the same grade point requirements as regular students.

A student in any accredited college or University who wishes to earn credits to be transferred back to the institution last attended may register as a special student. If a student plans to take 12 credits or more, he must register as a regular student and fulfill all entrance requirements.

A student who wishes to carry one or more courses (under 12 credits) for the general educational values expected, with no intention of meeting degree requirements, may register as a special student.

A special student is not eligible for a degree and no part of the study completed, while registered as a special student, can be applied toward meeting the residence requirement for a degree. If a special student wishes to become a candidate for a degree, he must meet all of the regular admission requirements and must register as a regular student.

ADMISSION AS A NON-MATRICULATED STUDENT

Students who come to the University of Idaho for the purpose of participating in short courses, workshops, and other courses, but have no intention of pursuing a course study leading to a degree from the University of Idaho, may enroll in one of the following two categories of non-matriculated student:

Non-Matriculated Student. The non-matriculated student may not earn credit for the courses in which he is enrolled. This category is available during the regular academic year as well as during the summer session. An applicant for participation as a non-matriculated student will need to make application on a special application form and should make this clear in his request for application materials. Such application indicates that no credit can be earned nor can it be claimed at a later date. This form of registration may be utilized in either under-

graduate or graduate courses. All applicants must be in good standing at the last institution attended to qualify for admission.

Summer Non-Matriculated Student. The summer non-matriculated student is allowed to register for not more than three semester hours credit in any one summer session. This category is available during summer school only. The student is not required to provide transcripts, statements of honorable dismissal, or any other credentials from other schools previously attended. The applicant is required to complete an application form on which he certifies that he (a) understands that acceptance in this category does not constitute an acceptance to a degree program; (b) has sufficient educational background to qualify for the courses in which enrollment is sought; (c) accepts personal responsibility for the applicability of credits earned while registered in this category to degree programs or for other purposes; (d) understands that the acceptability of credits earned while registered in this category toward a degree at the University of Idaho will be determined at such time as the individual may transfer to a degree-granting program; (e) understands that no commitment is expressed or implied concerning the acceptability or credits earned while registered as a summer non-matriculated student; (f) understands that credits earned while registered in this category cannot be used to satisfy the senior-year residence requirement; and (g) has graduated from an accredited high school.

ADMISSION TO THE COLLEGE OF LAW

All applicants for admission to the College of Law, whether or not previously enrolled at the University of Idaho, must submit directly to the College of Law a special personnel form and a score on the Law School Admission Test. Information about this form and about the test may be secured from the dean of the College of Law.

Applicants for admission to the College of Law whose most recent enrollment has been in some institution of higher education other than the University of Idaho are also required to submit to the Admissions Office of the University of Idaho the same credentials established above for a transfer student. Two copies of each college transcript are necessary. Applicants who will hold a bachelor's degree at the time of entrance do not have to file copies of high school transcripts and records.

ADMISSION OF FOREIGN STUDENTS

The University of Idaho accepts qualified students from foreign countries to the extent that space is available. Foreign applicants are expected to meet the requirements for admission from high school or from other colleges or universities as outlined above under PROCEDURES FOR APPLYING FOR ADMISSION.

Credentials: Official transcripts and/or certified copies of the certificate, diploma, or government examination report received on completion of secondary school work and the degree, license, or diploma received on completion of any college or university, must be sent by the certifying agency directly to the Admissions Office and must be translated into ENGLISH.

English Proficiency. All foreign applicants are required to take and receive a satisfactory score on TOEFL (Test of English as a Foreign Language) 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 592, Princeton, New Jersey 08540, U.S.A. The test must be taken and the scores received by the University prior to a decision on admission of the applicant.

Financial Statement: All foreign 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 of Idaho.

Health and Accident Insurance: The University of Idaho recommends that foreign applicants have health and accident insurance. The University offers such a policy available to all students.

Deadline for Application for Admissions: All foreign applicants must apply for admission (to include the taking of all tests and the filing of all required application forms and credentials) by the following dates:

For fall semester — 1 March

For spring semester — 1 August

For summer session — 1 December

Upon completion of all the requirements and when final acceptance is granted to the applicant, an I-20 form will be issued to the applicant by the Registrar's Office.

ADMISSION TO GRADUATE STANDING

A bachelor's degree from an accredited college or university is required for admission to graduate study. In addition, the student must meet any academic standards set up by the University. A complete certified transcript from the school awarding the bachelor's degree listing the degree awarded is necessary. If you have taken graduate study at any school after receiving your degree, transcripts and statements of honorable dismissal are also required from these schools. These transcripts must be sent directly to the Admissions Office of the University and should arrive some time prior to registration days so that they may be checked to determine your eligibility for admission.

For further regulations concerning graduate work see the statement of the Graduate School in Part II of this catalog.

EXPENSES

ANNUAL 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 low cost.

The largest item in the estimated school expense is board and room; the smallest is for the University fixed charges (regular residents of the state pay no tuition). Board and room are made available by the University at exceedingly low rates. This is possible because three-fourths of the students live on the campus in supervised residences. For about \$94.00 a month (\$33.00 for room, \$61.00 for board) or \$423.00 for the academic semester, students secure excellent board and room in the University-operated dormitories. The University also maintains cooperative residence halls where students may reduce this living cost by sharing the work. Here the costs are about \$75.00 a month, (\$26.00 for room, \$49.00 for board) or \$337.50 for the academic semester. These figures are based upon current rates which are subject to change depending upon change in costs.

Students joining fraternities or sororities may pay slightly more than those at the University halls, but the costs are still well below the average for similar living standards at most universities.

Total basic registration charges, including student activities and services, amount to \$146.00 for the semester. Music students pay special fees as described in the music course section in Part III of this catalog.

The above general items of expense are outlined in the following tabulation:

ESTIMATED COST	One Semester	Per Year
Registration Fees	\$146.00	\$292.00
Books, Supplies, etc.	25.00 to 50.00	50.00 to 100.00
Cooperative Dormitories	337.50	675.00
	to	to
Other Dormitories	423.00	846.00
Total — Not Including Personal and Incidental Costs	\$508.50 to 619.00	\$1017.00 to 1238.00

Non-resident students pay an additional charge for tuition, which is \$250.00 per semester.

In forecasting total college costs the individual must estimate and add to the foregoing a variety of miscellaneous costs, which vary widely with individual tastes. These include such items as clothing, laundry, transportation, and incidentals; social and recreational expenditures; fraternal affiliations, and personal needs.

The average minimum annual expense may be estimated at \$1060.00 to \$1120.00, including personal expenses while on the campus but excluding transportation costs. Of course some students may spend more according to their personal habits and tastes.

A student coming to the University of Idaho needs about \$400.00 to meet initial payments; out-of-state students need \$250.00 additional because of tuition. Personal checks, bank drafts, money orders or travelers checks are all accepted by the University.

STUDENT FEES

All students who register as regular students for undergraduate or graduate study pay the regular registration fee. Special fees are charged under the special conditions indicated. Any person, other than a staff member, who registers for more than six credits, or its equivalent, must pay the full registration fee.

Fees are payable in full at the time of registration on the scheduled registration days. Students registering after the prescribed registration pay the full registration penalty.

Payment of the regular registration fee entitles all students registered for academic credit to the services maintained by the University for the benefit of the students, subject to charges for special services. No reduction in fee can be made for students who may not desire to use any part of these services.

The University reserves the right to change the registration fee and charges listed herein without notice.

REGULAR FEES

All regular students who are legal residents of Idaho pay the uniform registration fee which amounts to \$146.00 for each semester. The payment includes all laboratory, course, and other charges except special fees for instruction in applied music (see music course section), field trips, special equipment charges, and specialized training.

Registration Fee — Total for "Residents" \$146.00

This includes all laboratory and course charges, including membership in the Associated Students (a small greens-fee is charged those using the golf course). If the student pays this fee for both semesters he is entitled to a yearbook without additional charge. Free clinic advice is furnished by the university physician

including privileges of the Student Health Center up to seven days per semester. (When hospitalization exceeds seven days in any one semester, an additional \$3.00 per day charge is made; also, additional charges are made for all hospital meals, X-rays, special medicines and special services). In addition this fee entitles the student to physical education services, use of the Student Union Building and services of the alumni secretary. In addition student accident insurance coverage is provided.

An undergraduate student who has not been domiciled in Idaho more than 12 months immediately preceding his first enrollment at the University is required to pay a tuition of \$250.00 a semester in addition to the registration fee of \$146.00, making a total of \$396.00. The legal residence of a student who is a minor shall be considered the same as that of his father (or mother, if the father is not living), or his legal guardian in case of adoption. Any person who is properly classified as a non-resident student, unless facts of residence change, retains that status as a student without regard to age or years of attendance at any institution of higher learning in Idaho.

SPECIAL FEES

The following special fees are charged under the conditions indicated:

Non-Resident Tuition (per semester) \$250.00

Late Registration Fee \$5.00 to 15.00

To help defray extra costs involved with late registration procedure, students who complete their registration after the scheduled registration days are charged a late registration fee of \$5.00 for the first day and \$5.00 for each additional day up to a maximum of \$15.00. (See calendars in the front of catalog for dates.)

Part-Time Students, Credit Hour Fee (per credit) \$12.50

Students who register for 6 semester hours or less (or equivalent) may pay the above fees in lieu of the regular fees. Payment of these special fees entitle the student to instructional and library privileges only.

Staff Members

Any full-time staff member of the University having an official appointment and any Regent-appointed instructional assistant or graduate assistant may register for instructional courses during any academic year without payment of fees; provided, however, any employee must be under employment during the entire academic period to have the fees waived for that period. Full time staff members are limited to a maximum of six credit hours per semester (three credits during summer session). Graduate and instructional assistants are also limited to a credit hour load determined by the graduate dean. The spouse of a full-time Regent-appointed employee may register for a maximum of two courses not to exceed nine credit hours for undergraduate students or six credit hours for graduate students during any semester, or one course during the summer session not to exceed four credit hours. If the registration exceeds these course or credit limitations, payment of full fees for all courses taken will be required. These limitations on courses or credits shall not apply in the semester in which the husband or wife of the spouse starts his fifth year of employment or any semester thereafter. If an employee resigns or ceases employment during an academic period for which the employee or spouse has enrolled for academic work without payment of fees, the person enrolled must either withdraw from the academic work or make full payment of fees. The above entitles a person to instructional and library privileges only and does not exempt one from applied music fees.

Auditors and Registration in Absentia —

Credit Hour Fee (per semester) \$12.50

Students who enroll only for courses in absentia or as auditors shall pay the above fee. This special fee for such courses is not charged if the courses are

part of a "normal" registration for a specific semester for which the student already has paid the full semester registration fees.

Advanced-Standing Examination Fee (per credit) \$1.00
This fee is charged for the privilege of taking an examination for advanced standing credit.

Application Fee \$25.00
This fee applies to all out-of-state undergraduate students. If the applicant is not accepted for admission by the University the sum of \$20.00 will be refunded. If the applicant is accepted for admission the entire amount will be applied as partial payment on the non-resident 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 enroll at the University then no credit or refund will be available.

Diploma Fee \$5.00-\$7.50
A diploma fee of \$5.00 is charged all applicants for a degree from the University except Law diplomas which are \$7.50 because of additional costs. The fee is payable at the time of filing the application. An additional fee of \$2.00 is charged when a special diploma insert must be made except for Law which is \$7.50. A penalty fee of an additional \$5.00 is charged if application is made after date specified in catalog. (See calendars in the front of this catalog.)

Thesis Binding Fee \$3.00
At the time application for the degree is made, every candidate for an advanced degree who is submitting a thesis or composition shall pay this fee for having two copies of his thesis or composition bound.

Transcript Fee \$1.00
Every individual who has established an academic record at the University shall upon his request be furnished without charge, a maximum of five official copies of his academic record. Transcripts requested in excess of the first five free copies will be charged for at the rate of \$1.00 per copy. (This includes correspondence and extension records).

Applied Music See Music Course Section

Field Trips (Ask instructor of course)

Special Equipment (Ask instructor of course) Varies

Library Fines and Charges See Librarian

REFUND OF FEES

Students who withdraw in accordance with the regulations governing withdrawals are entitled to the following refund of fees, except that \$6.00 of the registration fee is non-refundable once registration is completed.

- a. When withdrawal is accomplished during period of registration and before the beginning of classes: fees (less \$6.00) refunded in total.
- b. When withdrawal is completed after classes have begun but prior to the close of the second week of classes; seventy five per cent of fee balance refunded.
- c. When withdrawal is completed after the close of the second week but prior to the close of the fourth week of classes; fifty per cent of fee balance refunded.
- d. When withdrawal is completed after the close of the fourth week of classes; no refund.

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

The above schedule does not apply for applied music lessons.

Special fees for individual instruction in applied music 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 head of the Department of Music, who will be responsible for the approval of the application.

STUDENT HOUSING

A VERY LARGE proportion of single undergraduate students attending the University of Idaho live in University residence halls, or in fraternity or sorority housing located on the campus. The University recognizes group living experiences as basic to a student's total education and provides excellent facilities to help realize this objective. Each living group benefits from guidance services provided by adults associated in advisory capacities with the various groups.

The University operates a number of accommodations for married students, and private landlords in the city of Moscow provide housing for a large number of married students as well as for some single students.

The University establishes such regulations and procedures as may be necessary and appropriate to promote and assure acceptable living arrangements for all students living on or off the campus.

GENERAL HOUSING REQUIREMENTS (FOR SINGLE UNDERGRADUATE STUDENTS)

Women

All freshman, sophomore, and junior single women students are required to live on the campus in either University residence halls or in sororities. This policy does not apply to the following: those single women who are over 21 years of age or who reach their 21st birthday on or before Oct. 15 of the year in question; those single women who live with their parents or relatives either in Moscow or in surrounding communities; those single women who, for health reasons which are certified by the university physician, must not live in group housing; and for those single women who may be earning their room and/or board by performing services in a household which requires that they live there. Approvals for exceptions other than age shall be given by the dean of women.

Men

Subject to availability of space, all freshmen men students will live on the University of Idaho campus either in residence halls or in fraternities. Exceptions are made to this policy for the following: those single men who are over 21 years of age or who reach their 21st birthday on or before October 15 of the year in question; those single men who live with their parents or relatives either in Moscow or in surrounding communities; those students who for health reasons which are certified by the university physician, must not live in group housing; and those students who may be earning their room and/or board by performing services in a household or apartment building which requires that they live in such off-campus facilities. Approval for exceptions to this policy, other than age, must be granted by the dean of students.

RESIDENCE HALLS

The University operates eight residence halls which accommodate 1,135 men students and four residence halls which accommodate 920 women students

Meal services in dining rooms and a cafeteria are provided for students residing in each of these residence halls.

Application for Residence Halls

Students desiring to make application for housing in a University residence hall must be cleared for admission to the University of Idaho. The following procedures should be followed in this total process:

1. File an application for admission form which includes an indication of student housing plans with the University Admissions Office.
2. When admission to the University is cleared, the director of housing will send appropriate housing information to those who desire to live in residence halls, and an application-contract form will be forwarded to the applicant.
3. The applicant for residence hall housing then returns the completed and signed application-contract form **together with a \$35 deposit** to the office of the director of housing.
4. All the above steps must be completed before specific housing can be assigned.

ROOM RENT: Costs and Other Information

Following is a list of residence halls for men and women which indicates the capacity of each and the semester room rent for the 1969-70 school year.*

	Capacity	1st Semester	2nd Semester
MENS HALLS			
Campus Club**	60	\$125.00	\$115.00
Gault Hall	141	\$160.00	\$140.00
McConnell Hall	109	\$160.00	\$140.00
Upham Hall	132	\$160.00	\$140.00
Ballard Residence	212	\$160.00	\$140.00
Stevenson Residence	212	\$160.00	\$140.00
Theophilus Tower, Floors 8-11	160	\$175.00	\$150.00
Shoup Hall	109	\$160.00	\$140.00
WOMENS HALLS			
Ethel Steel**	58	\$130.00	\$120.00
Wiley Residence	312	\$160.00	\$140.00
Gooding Residence	310	\$160.00	\$140.00
Theophilus Tower, Floors 2-7	240	\$175.00	\$150.00

The above rates for second semester are for those students continuing from the first semester. New students entering the halls the second semester of an academic year pay first semester charges.

1. Arrangements for the rental of rooms in University of Idaho residence halls are on a semester contract basis and this contract is signed by the student.
2. Students who sign the semester contract are required **to live in a residence hall during the entire school semester.**
3. Semester room rentals are payable in advance to the business manager, University of Idaho.

* Room rentals rates are subject to change at any time by action of the Regents.

** Dining hall and janitor services operated under a cooperative plan where residents do the work.

4. Room rental payments are **not refundable**, except upon written petition to the Operations Council setting forth all pertinent facts. Exceptions may be made for critical illness which is evidenced by a doctor's written statement or other serious circumstances beyond the student's control. If a petition for refund is granted, a charge of \$2.00 per day for each day of occupancy will be made.
5. All University residence halls will be closed during Christmas vacation. Suitable quarters for a limited number of men students residing in residence halls will be available for those who wish to remain on the campus during Christmas and spring vacations. A charge of \$8.00 per week will be made for these vacation periods.

BOARD: Costs and Other Information

1. All students living in University residence halls are required to board there. Any exception to this regulation must be made by prior arrangements through the office of the director of housing.
2. Students who live in off-campus housing may arrange to eat their meals in one of the University residence halls dining rooms or cafeterias by applying to the director of housing.
3. Board in University residence halls is payable in advance in full at the beginning of each semester, or in four scheduled payments during the semester.

Example — first semester school year, 1969-70.*

Total for semester	\$280.00
September 7	70.00
October 10	70.00
November 10	70.00
December 10	70.00

These totals include state sales tax.

4. Board is calculated on the full semester basis. The meal charge begins automatically and simultaneously with the student's room rent schedule and continues until the end of the semester, except as provided for under the credit rules (see below). In establishing the above semester rates (which are comparatively low for the country as a whole) full allowance has been made for normal absences on weekends and holidays. Consequently, additional credit is not given for miscellaneous meals missed.
5. A student who fails to make full payment of delinquent room or board charges within 7 days of the time the payment became due shall be assigned a penalty charge of \$10 which is due and payable with the delinquent payment and further, if said delinquent payment and penalty has not been fully met within 14 days after the payment became first due, the registration of the student shall be cancelled automatically and without notice.
6. Students living in the two cooperative units contribute their share of the labor in the kitchen, dining room, and public areas to reduce living costs. Ethel Steel House is the cooperative for women; Campus Club for men.

Board Credit Rules

Credit for meals not consumed will be given when:

1. At least three consecutive meals are missed on account of confinement in the University Student Hospital because of illness, or upon written excuse

* Board rates are subject to change at any time by action of the Regents.

- from a physician when the student is not confined to the University Student Hospital.
2. The student is absent four or more consecutive meals on a required University trip during which meals are not furnished.

Suggested Equipment for Students who Expect to Live in University Residence Halls

The following equipment and room furnishings are **not** provided by the University.

1. **Men.** Three pairs of sheets for single bed; three pillow slips; a bedspread; a pillow; suitable bedding; towels, drinking glass; broom; dust mop and a small rug. Each men's hall has a laundry room furnished with coin operated machines. Commercial linen rental is also available in all halls.
2. **Women.** Three pairs of sheets for single bed; three pillow slips; a bedspread; a pillow; suitable bedding; towels, bureau cover; mattress pad; drinking glass for room; couch cover; one small rug. Each hall has excellent laundry equipment. Commercial linen rental is also available in all halls.

General Regulations

Living in a University of Idaho residence hall is a privilege which may be revoked for cause. Continuation of the privilege depends upon reasonable and satisfactory conduct, and observance of all University and residence hall regulations (covered in separate publications). Each student is expected to respect completely the rights, welfare and safety of others. Following are general residence halls regulations:

1. Undergraduate students are given a preference over graduate students for space available in residence halls.
2. Assignment of a specific room will not be made until the student arrives at the residence hall where he has a reservation.
3. The individual student will be charged for damage to University property where responsibility for such damage can be determined and assigned to an individual. Otherwise, charges for damages will be made against the hall organization through its treasurer.
4. Neither room reservation nor meal tickets are transferable.
5. The University reserves the right to enter a student's room at any time.
6. The University reserves the right at any time to change rental or board rates, alter the arrangements or deny the privilege of living in a residence hall.
7. Assignment of a room in a residence hall does not imply any obligation on the part of the University to furnish parking space on the campus for a student automobile.
8. The University does not carry insurance against the loss or damage of any individually -owned property.
9. Insurance against damage to personal property by fire is available to each student living in a residence hall through the Residence Halls Association.
10. Each student living in a particular residence hall is a member of that hall association and as such is expected to pay dues to that association to help provide for the many important services and activities carried on for the benefit of the members.

Fire Safety

1. Disregarding fire safety regulations, tampering with fire alarm systems or fire fighting equipment is cause for immediate dismissal from University residence halls and further action by appropriate disciplinary bodies.
2. Electrical wiring or alteration to existing wiring by students is prohibited.

3. The possession of fire crackers, gun powder or other forms of explosives is prohibited.
4. Participation in fire drills is mandatory.

FRATERNITIES AND SORORITIES

Eighteen national fraternities and nine national sororities maintain chapters and houses on the University of Idaho campus. Membership in a fraternity or sorority 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 or sorority ranges between \$80.00 and \$90.00 a month which includes charges for room, board and most initiation fees in addition to board and room charges, but these special fees are paid only once during the individual's college career.

Sororities

The following national sororities have chapters and houses on the University of Idaho campus: Alpha Chi Omega, Alpha Gamma Delta, Alpha Phi, Delta Delta Delta, Delta Gamma, Gamma Phi Beta, Kappa Alpha Theta, Kappa Kappa Gamma, and Pi Beta Phi. Panhellenic Council coordinates intersorority relationships and formulates policies and rushing procedures.

Arrangements for Sorority Living

Final arrangements for living in a sorority house are made by invitation. Registration and arrangements for participation in a program known as sorority "rushing" are made through the Panhellenic Council, c/o Office of Student Affairs, University of Idaho. Women who wish to register for the rushing program must first obtain permission to register in the University as determined by the director of admissions. Registration for rushing should be made as soon after February 1 as possible and **must be completed no later than August 10.**

Fraternities

The following chapters of national fraternities maintain houses on the University of Idaho campus: Alpha Kappa Lambda, Alpha Tau Omega, Beta Theta Pi, Delta Phi, Delta Sigma Phi, Delta Tau Delta, Farm House, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Tau, Pi Kappa Alpha, Sigma Alpha Epsilon, Sigma 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 good fellowship and self government among the fraternities.

Arrangements for Fraternity Living

Final arrangements for living in one of the University of Idaho's fraternities are made by invitation of the group. An opportunity to get acquainted with each of these fraternities is provided by a period of activity known as "rush" at the end of which time each individual and each group indicates choices. Registration for participation in this program is made by writing: Interfraternity Council, c/o Office of Student Affairs, University of Idaho. This registration should be completed as soon as possible after February 1, and must be completed by August 31 of the year the student intends to enter the University.

Men students who plan to register for fraternity rush are requested not to make a dormitory room deposit.

FAMILY HOUSING

The University operates the Park Village housing project for student family accommodations. Furnished, one-bedroom apartments rent for \$85.00 per month which includes furniture, heat, hot and cold water, t.v. cable, and garbage disposal service. Laundry facilities are available. Telephone may be installed at te-

nant's expense. Parking space is adequate but transportation is not necessary because of campus location of the housing.

Size of family is limited to couples and those with one child. **Pets are not permitted.** Tenants should bring china, utensils and linen. Such items as ironing board, radio and floor lamp may be useful.

The University also operates two other housing projects for married students with larger families.

To apply for an apartment, write to the director of family housing, University of Idaho. A \$25.00 advance deposit is required.

DEGREES GRANTED

THE FOLLOWING DEGREES are conferred upon those who have successfully completed the prescribed courses of study and who have complied with other requirements stipulated by the University.

FIRST DEGREES

College of Letters and Science

Bachelor of Arts, *B.A.*

Bachelor of Science, *B.S.*

Bachelor of Science in Home Economics, *B.S.(H.Ec.)*

Bachelor of Science in Pre-Dental Studies, *B.S.(Pre-Dent.)*

Bachelor of Science in Pre-Medical Studies, *B.S.(Pre-Med.)*

Bachelor of Architecture, *B.Arch.*

Bachelor of Fine Arts, *B.F.A.*

Bachelor of Landscape Architecture, *B.L.Arch.*

Bachelor of Music, *B.Mus.*

Bachelor of Naval Science, *B.N.S.*

Bachelor of Physics, *B.Phys.*

College of Agriculture

Bachelor of Science in Agriculture, *B.S.(Ag.)*

College of Engineering

Bachelor of Science in Agricultural Engineering, *B.S.(Ag.E.)*

Bachelor of Science in Chemical Engineering, *B.S.(Ch.E.)*

Bachelor of Science in Civil Engineering, *B.S.(C.E.)*

Bachelor of Science in Electrical Engineering, *B.S.(E.E.)*

Bachelor of Science in Mechanical Engineering, *B.S.(M.E.)*

College of Mines

Bachelor of Science in Geography, *B.S.(Geog.)*

Bachelor of Science in Geology, *B.S.(Geol.)*

Bachelor of Science in Mining Engineering, *B.S.(Min.E.)*

Bachelor of Science in Metallurgical Engineering, *B.S.(Met.E.)*

College of Forestry, Wildlife and Range Sciences

Bachelor of Science in Forestry, *B.S.(For.)*

College of Education

Bachelor of Science in Education, *B.S.(Ed.)*

Bachelor of Science in Business Education, *B.S.(Bus.Ed.)*

* Bachelor of Music Education, *B.Mus.Ed.*

College of Business and Economics

Bachelor of Science in Business, *B.S.(Bus.)*

PROFESSIONAL DEGREES

College of Engineering

Agricultural Engineer, *Ag.E.*

Chemical Engineer, *Ch.E.*

Civil Engineer, *C.E.*

Electrical Engineer, *E.E.*

Mechanical Engineer, *M.E.*

College of Law

Bachelor of Laws, *LL.B.*

Juris Doctor, *J.D.*

College of Mines

Engineer of Mines, *E.M.*

Geological Engineer, *Geol.E.*

Metallurgical Engineer, *Met.E.*

ADVANCED DEGREES — GRADUATE SCHOOL

Masters Degrees

Master of Arts, *M.A.*

Master of Science, *M.S.*

Master of Agriculture, *M.Ag.*

Master of Architecture, *M.Arch.*

Master of Arts in Teaching, *M.A.T.*

** Master of Arts in Teaching (Name of Subject Field), *M.A.T. (**)*

Master of Business Administration, *M.B.A.*

Master of Education, *M.Ed.*

Master of Fine Arts, *M.F.A.*

Master of Forestry, *M.F.*

Master of Music, *M.Mus.*

Master of Natural Science, *M.Nat.Sc.*

*** Master of Nuclear Science, *M.Nuc.Sc.*

Certificate (Sixth-Year Level)

Professional Certificate in Education, *Prof.Cert.(Ed.)*

Doctoral Degrees

Doctor of Education, *Ed.D.*

Doctor of Philosophy, *Ph.D.*

* The music education curriculum has been transferred to the College of Letters and Science and placed under the degree of Bachelor of Music; however, students who were majoring in music education in the College of Education prior to the beginning of the 1969-70 academic year may continue in the B.Mus.Ed. program and receive that degree.

** When the M.A.T. degree is earned in a discipline other than education, the subject field is made a part of the name of the degree, e.g., Master of Arts in Teaching Sociology-Anthropology, *M.A.T. (Soc.-Anthro.)*.

*** Limited to students enrolled in the educational program of the National Reactor Testing Station, Idaho Falls.

MAJORS AND PROGRAMS OFFERED

UNDERGRADUATE

Accounting — *B.S.(Bus.)*
 Agricultural Biochemistry — *B.S.(Ag.)*
 Agricultural Economics — *B.S.(Ag.)*
 Agricultural Education — *B.S.(Ag.)*
 Agricultural Engineering — *B.S.(Ag.E.)*
 Agricultural Mechanization — *B.S.(Ag.)*
 Animal Industries — *B.S.(Ag.)*
 Animal Science
 Dairy Science
 Poultry Science
 Range Livestock Management
 Anthropology — *B.A.*
 Architecture — *B.Arch.*
 Art — *B.A., B.F.A.*
 Design
 Education
 Painting
 Sculpture
 Bacteriology — *B.S.(Ag.), B.S.*
 Medical Technology Option (B.S.)
 Biology — *B.S.*
 Botany — *B.S.*
 Business (General) — *B.S.(Bus.)*
 Business and Applied Science — *B.S.(Bus.)*
 Business Education — *B.S.(Bus.Ed.)*
 Chemical Engineering — *B.S.(Ch.E.)*
 Chemistry — *B.S.*
 Technical Literature
 Child Development — *B.S.(H.Ec.)*
 Civil Engineering — *B.S.(C.E.)*
 Classical Studies — *B.A.*
 Clothing, Textiles and Design — *B.S.*
 (*H.Ec.*)
 Clothing
 Interiors
 Dental Studies (Pre-Dent. Studies) —
 2 Year Program, and B.S. (Pre-Dent.)
 Drama — *B.A.*
 Acting-Directing
 Technical Theatre
 Economics — *B.S.(Bus.), B.A.*
 Electrical Engineering — *B.S.(E.E.)*
 Elementary Education — *B.S.(Ed.)*
 English — *B.A.*
 Entomology — *B.S.(Ag.)*
 Finance — *B.S.(Bus.)*
 Fishery Management — *B.S.(For.)*
 Food and Nutrition — *B.S.(H.Ec.)*
 Dietetics and Institutional Management
 Food and Nutrition Research

Food Science — *B.S.(Ag.)*
 Forest Management — *B.S.(For.)*
 Business Management
 Resource Management
 French — *B.A.*
 Geography — *B.S. (Geog.), B.A.*
 Geological Engineering — *B.S.(Geol.E.)*
 Geology — *B.S.(Geol.)*
 Paleontology
 German — *B.A.*
 History — *B.A.*
 Home Economics — *B.S.(H.Ec.)*
 General Home Economics
 Business
 Journalism
 Home Economics Education — *B.S.(H.Ec.)*
 Teaching
 Extension
 Industrial Arts Education — *B.S.(Ed.)*
 Interdisciplinary Studies — *B.A., B.S.*
 Interior Design — *B.F.A.*
 Journalism — *B.A.*
 News-Editorial
 Advertising
 Radio-Television News
 Landscape Architecture — *B.L.Arch*
 Law (Pre-Law) — *B.S.(Bus.)-J. D.; and*
 B.A.-J.D.
 Latin — *B.A.*
 Marketing — *B.S.(Bus.)*
 Real Estate
 Mathematics — *B.S.*
 Mechanical Engineering — *B.S.(M.E.)*
 Medical Studies (Pre-Med. Studies) —
 B.S.(Pre-Med.)
 Metallurgical Engineering — *B.S.(Met.E.)*
 Mining Engineering — *B.S.(Min.E.)*
 Music — *B.A., B.Mus.*
 Composition (B.Mus.)
 Literature (B.A.)
 Performance (B.A., B.Mus.)
 Music Education — *B.Mus., B.Mus.Ed. **
 Naval Science — *B.N.S.*
 Nursing (Pre-Nurs. Studies) — *1 Year and*
 2 Year Programs
 Office Administration — *B.S.(Bus.)*
 Philosophy — *B.A.*
 Physical Education — *B.S.(Ed.)*
 Men
 Women

* The music education curriculum has been transferred to the College of Letters and Science and placed under the degree of Bachelor of Music; however, students who were majoring in music education in the College of Education prior to the beginning of the 1969-70 academic year may continue in the B.Mus.Ed. program and receive that degree.

Physical Therapy (Pre-Phys Therapy Studies) — *B.S.*
 Physics — *B.S., B.Phys.*
 Plant Science — *B.S.(Ag.)*
 Political Science — *B.A.*
 Psychology — *B.S.*
 Radio-Television — *B.A.*
 Range Management — *B.S.(For.)*
 Recreation — *B.S.(Ed.)*
 Secondary Education — *B.S.(Ed.)*
 Sociology — *B.A.*
 Social Work
 Soils — *B.S.(Ag.)*
 Spanish — *B.A.*
 Special Education — *B.S.(Ed.)*
 Elementary
 Secondary
 Speech — *B.A.*
 Technical Education — *B.S.(Ed.)*
 Veterinary Science — *B.S.(Ag.)*
 Vocational Teacher Education — *B.S.(Ed.)*
 Trade and Industrial
 Vocational-Technical
 Wildlife Management — *B.S.(For.)*
 Wood Utilization Technology — *B.S.(For.)*
 Forest Products
 Wood Science-Engineering
 Zoology — *B.S.*

ADVANCED AND GRADUATE

Agricultural Biochemistry — *M.S., Ph.D.*
 Agricultural Economics — *M.S., M.Ag.*
 Agricultural Education — *M.S., M.Ag.*
 Agricultural Engineering — *M.S., Ph.D.*
 Animal Science — *M.S., M.Ag.*
 Anthropology — *M.A.*
 Architecture — *M.A., M.Arch.*
 Art — *M.A., M.F.A., M.A.T.(Art)*
 Bacteriology — *M.S., M.Nat.Sc., Ph.D.*
 Biology — *M.Nat.Sc., M.A.T.(Biol.)*
 Botany — *M.S., M.Nat.Sc., Ph.D.*
 Business Administration — *M.S., M.B.A.*
 Business Education — *M.S., M.Ed.*
 Chemical Engineering — *M.S., M.Nuc.Sc., Ph.D.*
 Chemistry — *M.S., M.Nuc.Sc., M.Nat.Sc., M.A.T.(Chem.), Ph.D.*
 Civil Engineering — *M.S., Ph.D.*
 Dairy Science — *M.S., M.Ag.*
 Drama — *M.A.*
 Drama-Speech — *M.A.T.(Drama-Sp.)*
 Earth Science — *M.Nat.Sc.*
 Economics — *M.S.*
 Education — *M.S., M.Ed., M.A.T., Prof.Cert.(Ed.), Ed.D., Ph.D.*
 Elementary Education
 Guidance and Counseling

School Administration
 School Psychology — *Prof.Cert.(Ed.) only*
 Secondary Education
 Special Education
 Electrical Engineering — *M.S., M.Nuc.Sc.*
 English — *M.A., M.A.T.(Eng.)*
 Entomology — *M.S., Ph.D.*
 Fishery Management — *M.S., M.F.*
 Food Science — *M.S.*
 Forest Entomology — *M.S.*
 Forest Management — *M.S., M.F.*
 Forest Pathology — *M.S., M.F.*
 Forest Sciences — *M.S., Ph.D.*
 Geography — *M.S., M.A.T.(Geog.)*
 Geological Engineering — *M.S.*
 Geology — *M.S., Ph.D.*
 History — *M.A., M.A.T.(Hist.), Ph.D.*
 Hydrology — *M.S.*
 Industrial Education — *M.S., M.Ed.*
 Interior Architecture and Decorating — *M.A.*
 Home Economics — *M.S., M.A.T.(H.Ec.)*
 Law — *LL.B., J.D.*
 Mathematics — *M.S., M.Nuc.Sc., M.Nat.Sc., M.A.T.(Math.), Ph.D.*
 Mechanical Engineering — *M.S., M.Nuc.Sc.*
 Metallurgical Engineering — *M.S., M.Nuc.Sc.*
 Mining Engineering — *M.S.*
 Music — *M.A., M.Mus., M.A.T.(Mus.)*
 Composition (M.Mus.)
 Education (M.Mus.)
 History (M.A.)
 Literature (M.Mus.)
 Performance Studies (M.Mus.)
 Teaching (M.A.T.Mus.)
 Theory (M.A.)
 Theory-Composition (M.Mus.)
 Nuclear Engineering — *M.S.*
 Philosophy — *M.A.*
 Physical Education — *M.S., M.Ed.*
 Physics — *M.S., M.Nuc.Sc., M.Nat.Sc., M.A.T.(Phys.), Ph.D.*
 Plant Science — *M.S., M.Aq., Ph.D.*
 Political Science — *M.A., M.A.T.(Pol.Sc.), Ph.D.*
 Poultry Science — *M.S., M.Ag.*
 Psychology — *M.S.*
 * Radiological Science — *M.S.*
 Range Management — *M.S., M.F.*
 Social Sciences — *M.A.T.(Soc.Sc.)*
 Sociology — *M.A.*
 Sociology-Anthropology — *M.A.T. (Soc.-Anthro.)*
 Soils — *M.S., M.Ag., Ph.D.*
 Veterinary Science — *M.S.*
 Wildlife Management — *M.S., M.F.*
 Wood Utilization — *M.S., M.F.*
 Zoology — *M.S., M.Nat.Sc., Ph.D.*

*The graduate major in radiological science is limited to students enrolled in the educational program of the National Reactor Testing Station, Idaho Falls

GENERAL ACADEMIC REGULATIONS AND RULES OF PROCEDURE

THE FOLLOWING REGULATIONS and rules of procedure have been promulgated by the Faculty of the University. To have any regulation or rule waived it is the responsibility of the student to present a petition to his academic dean, and, if necessary, through the dean to the Administrative Council.

The registrar is responsible only for checking student records for compliance with regulations in the catalog.

Students are individually responsible for knowledge of and compliance with these regulations and rules of procedure. Failure to be informed or to comply will not excuse a student from his responsibility or from any penalty or difficulty he may encounter.

Students are advised to check their own records at the time of each registration to assure that they are systematically and progressively meeting degree requirements. Students should insist that all current questions in this respect be reviewed with the registration adviser, major professor or dean at each registration and covered by appropriate actions or memoranda at that time.

A. MATRICULATION

An applicant for enrollment in any course offered by the University for college credit, except correspondence, files certain personal data and credentials covering all previous academic work. (See procedures for applying for admission, above.) After the University has accepted these credentials and issued a tentative permit to register, the student's registration completes his matriculation.

B. REGISTRATION

1. **Admission to Classes.** At the beginning of a University session each student makes out a study list. After receiving his dean's written approval of this study list and paying his fees, he files his completed registration blank in the Registrar's Office together with a class permit for each course to be taken for credit, for zero credit, or as an auditor. The class permits are immediately sent to the instructors concerned. Instructors do not admit students to class for whom they have no class permits.
2. **Auditors.** Auditing a course consists of regularly attending without other participation and without credit. Only lectures may be audited. Only regularly enrolled students may audit courses.
3. **Non-Resident Courses.** Students are not permitted to carry extension or correspondence work for college credit in this or at any other institution while in residence at the University of Idaho. Registration for extension or correspondence courses offered by the University of Idaho is automatically cancelled if a student fails to complete the work before he registers for resident work. This rule may be waived only by the written approval of the student's academic dean.
4. **Registration of Underclass Students in Upperclass Courses.** Policy of the University provides that underclassmen shall not take upperclass courses (those numbered 300 and above). However, exceptions to this general rule may be made under certain circumstances as follows:
 - (a) When an exception is being considered the interest and welfare of the student concerned shall be a prime factor. As a policy, an exception should

be made for the student who can meet the prerequisites and who is exceptionally well prepared in a field of study in which continuity of progress is highly desirable. However, unless it is necessary in order to complete degree requirements, such an exception should not postpone the completion of lower division requirements beyond the usual period.

- (b) The academic dean of the student concerned shall be responsible for authorizing an exception only after having assured himself that the student is qualified under (a) above.

5. Registration of Undergraduate Students in Graduate Courses. Undergraduate students may not register in graduate courses (those numbered 500 and above) unless they have senior standing (see Regulation P). Such students will be limited to one graduate course and must have prior written approval of the dean of the Graduate School before registering for the course.

6. Registration of Students with Bachelor's Degrees as Undergraduates. Students working for advanced degrees and those who wish to earn graduate credit or enroll in graduate (500 and above) courses are required to register in the Graduate School. Students who do not meet the requirements for admission to the Graduate School, or who have a considerable number of undergraduate deficiencies, or special students who wish to take a limited number of undergraduate courses, may register as undergraduates. To register as an undergraduate a student with a bachelor's degree must secure the permission of the dean of the undergraduate college and file a statement in the Registrar's Office indicating that he understands that this work will not be classified as graduate work and cannot be used toward an advanced degree at a later date.

7. Registration for Accelerated Courses. Students not registered for resident courses the first nine weeks of any semester may register for accelerated courses at registration time or any time up to and including the Friday preceding the starting date for the accelerated courses without petition and without late registration fees.

8. Pass-Fail Option. With the approval of his adviser, an undergraduate student who has attained junior standing (60 semester hours) and has a cumulative gradepoint average of 2.00 or higher is permitted to enroll in one elective course per semester outside his major field under the pass-fail option. A maximum of 12 credits earned in courses under this regulation may be counted toward a baccalaureate degree. A grade of "P" will not be counted in the student's grade point average; however, a grade of "F" shall be computed in the average. A student may drop a pass-fail option course in the same manner as a regular course, but he may not change a regular course to a pass-fail option course — or vice versa — after registration. Application forms for registration under this regulation may be secured from the student's counselor, from registration headquarters, or from the Registrar's Office.

The definition of "registration" in the above regulation is interpreted to mean the end of the third week of classes.

C. CHANGES IN REGISTRATION

1. Change of Study List. After a student has registered he must follow his study list. Instructors are not authorized to make changes in study lists. Students may not drop a course by simply staying out of class. (See Regulation E-1.) A student wishing to change his study list should confer with his dean.

A student may not change his registration to take up an additional course for credit or increase the number of credits registered for later than the end of the third week* after classes officially began except upon the written approval of his academic dean, unless the registration for the additional course or credit is to correct a clerical error made in his original registration.

* See calendars in the front of this catalog for date.

A student may withdraw from a course without penalty until the end of the third week after classes have officially begun. A student who withdraws after the end of the third week* must be given a passing or failing grade. All students, excepting College of Law students, are not allowed to drop courses after the end of the twelfth week following the beginning of classes. Academic deans may petition the Administrative Council for review of exceptional cases.

Petitions to withdraw from courses will not be accepted in the Registrar's Office after the start of the scheduled final examination period.*

Changes in study list are not effective or official until the date they are filed into the Registrar's Office.

2. **Change of Curriculum.** A student may not change from one curriculum to another except by written permission of the deans concerned on a regulation form which must be filed in the Registrar's Office immediately. (See Regulation J-1.)

D. CREDIT

1. **Credit Defined.** The value of each course is stated in semester credits. 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, study/preparation laboratory work, or field investigation may be arranged.

2. **Credit Limitation.** A student may not register for or earn more than twenty credits in any semester, except upon the prior written approval of his academic dean.

3. **Credit For Less Than One Year's Work.** In certain courses no credit is given for the first course until a more advanced or related course is completed. This limitation is specified in the description of such courses.

4. **Transfer Credit.** Credit is given for work completed in accredited higher institutions in accordance with the regulations covering the admission of transfer students.

5. **Credit by Examination.** Examinations for credit in courses offered by the University but covering work done in non-accredited institutions, high school, through private study, or employment may be given to students registered for a degree at the University of Idaho. Complete regulations governing these examinations are as follows:

- (a) Only resident students registered as candidates for a degree at the University of Idaho may obtain credit via the "credit by examination" (challenge) procedure.
- (b) The examination must be in a course offered by the University for degree credit.
- (c) A student may not earn credit by examination in a course if he has already received credit for a course in the same subject for which it is a prerequisite.
- (d) The course must be such that in the opinion of the department concerned, proficiency in the course can be demonstrated by a single examination.
- (e) A student may challenge a course no more than once.
- (f) No examination will be approved during the student's final semester before qualifying for his degree.
- (g) The course shall not be one in which the student has been previously

* See calendars in the front of this catalog for date.

enrolled as an auditor, has taken for zero (0) credit, or has taken for credit and failed.

- (h) Graduate credit may not be obtained by this procedure.
- (i) The student shall first submit in writing a full statement describing the preparation or other qualification which he believes justifies his request. Both the instructor in the course and the head of the department concerned shall attach statements which indicate that they agree this constitutes adequate evidence. The statements shall be attached to the petition and submitted to the dean for permission to take the examination. If the request is approved, the dean shall notify the student who shall then pay the examination fee to the cashier and present his receipt to the registrar. The registrar shall notify the instructor who may then administer the examination and report the results to the registrar.
- (j) The student must make a "C" or higher on the examination in order to obtain credit for the course.
- (k) When a student does get credit for a course by this procedure, his grade in the course shall be a "P."
- (l) If a student gets a "D" or "F" on the examination, it shall not appear on his transcript, i.e., he shall receive no penalty for his unsuccessful attempt except that he will not be permitted a second attempt.

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

7. **Repeat of High School Courses.** When provisions are made for permitting qualified entering students to begin University work in some areas at an advanced level, these provisions shall be regarded as extending a privilege rather than forcing a student to take advanced work in order to earn credit. Regardless of the courses they may have taken in high school all students are therefore entitled to credit in University courses offered by the College of Letters and Science on the same basis.

E. GRADES

1. Grades for undergraduates are reported as "A" (90-100) superior; "B" (80-89) high; "C" (70-79) average; "D" (60-69) barely passing; "F" (below 60) failure; "P," passed without defining grade (in certain courses only); "Inc.," incomplete work of passing grade, but for acceptable reason not quite completed; "W," withdrawal by permission before a definite record is established or while the student is doing passing work. A grade of "F" is reported when a student stops attending classes without permission (see Regulation C-1); "E," condition, is used at midsemester only and usually indicates a grade between 50 and 60.

In the case of graduate students registered in courses numbered 500 or above, grades of A, B, C, D, F, W, or Inc. must be reported. The grade "IP" is used to indicate satisfactory progress in graduate courses 500 and 600, research and thesis, and research and dissertation. Regular letter grades will be used when the thesis or dissertation is finally accepted.

2. A grade of "F" denotes that the work of a student in a given subject is of such poor quality that credit may be obtained only by repeating and passing the course.

3. Except in case of clerical error, a grade which has once been turned into the Registrar's Office may not be changed.

4. In computation of scholastic averages the following scale of grade points shall be used: "A" equals 4; "B" equals 3; "C" equals 2; "D" equals 1; and "F" equals 0. Grade points are not given for correspondence, extension, resident

extension, advanced placement, advanced standing examination, or required physical education activity courses.

5. A student who has received a grade below "C" in a given course may repeat that course in an attempt to raise his grade. Students should note that regardless of the number of times a "D" or "F" grade course is repeated, all grades are included in the computation of the student's cumulative grade point average.

As an exception to this general regulation, a student who received a grade of "F" in a given course at the University of Idaho while classified as a freshman is permitted to repeat the course once in residence for grade point purposes, and when the course is thus repeated the second grade only counts in computing the student's cumulative grade point average, although the first grade remains on the record. Prerequisite courses cannot be repeated after the completion of the advanced courses. (This regulation is effective for all such repeated courses taken after September 1, 1969.)

6. Midsemester grades for lower division courses as well as semester grades for all courses are filed in the Registrar's Office. Semester grades of all single students are reported to their parents at the end of each semester in residence at the University. Grades of Idaho high school graduates are reported to their high schools at the end of each semester of attendance at the University of Idaho.

7. Students registered in residence on the campus at Moscow are furnished grade reports at the end of each semester and summer school.

F. INCOMPLETES

1. **Grades of "Inc."** An incomplete is given at the end of the semester only in case the student has been in attendance and done satisfactory work to a time within three weeks of the close of the semester, i.e., the end of the examination period, or within one week of the close of the summer school. It may not be given 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 "Inc." is given, the instructor shall indicate in writing on the class list what the student must do to remove the deficiency.

2. **Removal of Incompletes.** Incompletes should be removed within three weeks* after the beginning of the semester or summer session in which the student next returns to the University. Incompletes not made up before that date automatically become failures unless the student has previously filed in the Registrar's Office a "permit for extension of time" card, signed by his dean and the instructor concerned. In case an extension is granted, incompletes not made up before the expiration of the extension automatically become failures. It is the student's responsibility to see that incompletes are made up before the expiration dates. "Removal of incomplete" cards must be received at the Registrar's Office prior to these dates. Unless special action is taken in advance, reregistration in a course for which "Inc." has been filed automatically changes the "Inc." to an "F."

A student allowed to register pending removal of incompletes is not entitled to an extension of time.

Incompletes not made up within four years, with the exception of research and thesis or research and dissertation courses, automatically become withdrawals and all make-up privileges are forfeited. Students registered for courses in adult centers are governed by this regulation.

3. **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

* See calendars in the front of this catalog for date.

during the allotted time provided that the total load, including the "incompletes," does not exceed six semester credits. If during the year the student enrolls for residence courses at an adult center or on the Moscow campus, Regulation F-2 becomes applicable.

G. WITHDRAWAL FROM THE UNIVERSITY

A student who wishes to withdraw from the University obtains an "indefinite leave of absence" card from his dean and files it in the Registrar's Office. He then receives a "W" in courses in which he is passing and an "F" in all courses in which he is failing. A student may not withdraw from the University after the start of the scheduled final examination period. The date the "indefinite leave of absence" card is filed in the Registrar's Office is the official date of the withdrawal. (See "refund of fees" in the Index).

H. EXAMINATIONS

1. **Regular Final Examinations.** In all undergraduate courses regular final examinations are held at the end of each semester in accordance with the schedule approved by the Faculty Council Committee on Examinations and Field Trips. An instructor giving a course for which a final examination is not an appropriate test of the work covered may dispense with such examination upon securing the written consent of the head of his department and the dean concerned.

Final grades for each course must be filed in the Registrar's Office within 72 hours after the examination is given.

A student who absents himself from a regular final examination without valid reason receives an "F." If the excuse is valid, and the work of the semester satisfactory, the student receives an "Inc."

A student who must be absent from a regular final examination shall present in advance to the instructor concerned written permission from his dean to be absent.

2. **Special Final Examination.** A student, absent from a regular final examination, by permission of his dean (through sickness or other unavoidable cause), may take a special final examination. He shall satisfy his academic dean as to his reasons for absence. His academic dean will then inform the instructor concerned in writing that the student has permission to take a special final examination. (This does not pertain to early final examinations.)

I. ADVANCED PLACEMENT

1. When an entering freshman, by means of a sufficiently high score on appropriate College Board Entrance Examinations and or other acceptable evidence shows that he is capable of handling a course not ordinarily open to beginning students, he may, with the approval of the department concerned, be permitted to enroll in such a course.

When a student who registers in an advanced course, under the above procedure for advanced placement, passes this course with a grade of "C" or above, he shall receive credit both in the course that he has taken and in any by-passed course, or courses, which are vertical in academic content and where a mastery of the subject matter of the course or courses by-passed is essential to the understanding of the advanced course in which the student registers, in which the department certifies that he has demonstrated proficiency. His grade in the by-passed courses shall be "P."

2. The University also accepts ratings of 5, 4, or 3 received on the CEEB Advanced Placement Tests which are normally taken by students who have had college level courses in high school. These tests are offered in the following areas: English, history, languages, mathematics, chemistry, biology, and physics. The

advanced placement tests are administered every year in May at high schools only. High schools offering college level courses must contract with Educational Testing Service to make these tests available to their qualified students. The tests and ratings are sent to the University. College credit will be given at the discretion of the departmental faculty concerned but no grade will be entered on the student's record for these courses.

J. GENERAL UNIVERSITY REQUIREMENTS FOR DEGREES

In addition to the general and specific requirements of his curriculum, as expressed in terms of definite courses and group requirements in subject fields, a candidate for a baccalaureate degree must have met the following general University requirements.

1. **Residence Requirements.** A candidate for a baccalaureate degree must do the work of his senior year (32 semester credits) in residence in the curriculum and in the division from which he graduates.* (In the College of Law 26 semester credits constitute the senior year's work.)

After a candidate is within 40 semester credits of completing the total number of credits required for his specific degree he must complete in residence, on the University of Idaho campus, a minimum of 32 additional semester credits. These 32 residence credits may be interrupted by correspondence and extension courses or attendance at another fully accredited institution.

Students in the combined arts and law curriculum (B.A. and J.D.) or the combined business and law curriculum (B.S. Bus. and J.D.) must also do the work of the junior year in the College of Letters and Science or the College of Business and Economics as the case may be.

Candidates for pre-professional degrees, which require the completion of professional courses not offered at the University of Idaho, must complete their junior year in residence at the University of Idaho.

2. **Subject requirements.** (a) English Composition, six credits; (b) Physical Education. Unless excused by the University physician, all students are required to enroll in physical education activity courses during their freshman and sophomore years as follows:

For Men—One activity course, PE 131-133, for which $\frac{1}{2}$ credit must be earned as a result of a passing grade, normally taken each semester during the freshman and sophomore years, totaling four separate semesters.

For Women — One activity course, for which a passing grade is required, in each of the courses numbered PE 105, 106, 107, and 108 except for those women students who are majoring or minoring in the physical education curriculum. Normally these activity courses are to be taken in the first two years, one course each semester totaling four separate semesters. In addition, two credits in healthful living, except for those students who are registered in certain home economics, pre-nursing, pre-medical, bacteriology, and veterinary science curricula, normally to be taken during the freshman year are required. Women students within the University who do not have junior standing and change from curricula in which healthful living is not required must complete the healthful living requirement. Transfer students with less than 60 semester credits must meet the healthful living requirement unless already satisfied by transfer credit. In taking the four required activity courses women students are required to select one in each of the following four areas, unless excused for medical reasons or by their dean: rhythmic, individual sports, swimming, and team sports. These courses may be repeated for credit on an elective basis if a student engages in a different activity. If a student for medical reasons is excused from one area (i.e. swimming),

*By interpretation of the Administrative Council residence in combined B.A. and Law and Business and Law may be counted in either or both divisions.

the fourth course may be taken in any of the given areas if she selects an activity for which she has not previously received credit. Any woman student who wishes to take proficiency test (skill and knowledge) in the activity of any of the above areas and who satisfactorily passes such a test will for that one unit be allowed to elect within any other area. Any woman who satisfactorily passes a health knowledge test will be exempt from meeting the healthful living requirement.

Students transferring from other accredited institutions with the number of semester credits listed must complete the physical education activity requirement as stated below:

- 0-13 semester credits—must complete 4 semesters of physical education.
- 14-25 semester credits—must complete 3 semesters of physical education.
- 26-43 semester credits—must complete 2 semesters of physical education.
- 44-59 semester credits—must complete one semester of physical education.
- 60 or more semester credits—no physical education required.

All students thirty years of age or over, all married women students with one or more children, and all veterans whose active military service was of at least one year's duration are exempted from the physical education requirements. No credit shall be allowed in connection with such exemptions.

3. **Grade Requirements.** To qualify for the baccalaureate degree, a candidate must present a cumulative grade point average of 2.00 or better for all residence courses attempted at the University or any other institution. (See exception under regulation "E," item 5.) This regulation is effective for courses taken after September 1, 1969.

4. **Requirements in Advanced Courses.** A candidate must present a minimum of 36 semester credits of work in courses numbered 300 or above.

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

- (a) the first 8 credits in organized music (Mus 103 through 109; 303 through 309) except toward the professional degree of Bachelor of Music.
- (b) the first 8 credits in non-sectarian courses in religion. Students with less than eight credits in religion courses who register for additional work in this subject area, and by the registration exceed the maximum of eight credits allowed toward a baccalaureate degree, must declare at the time of such registration which additional course or courses shall be used for credit and grade-point purposes.
- (c) 32 semester hours in any combination of credits earned in correspondence courses, extension courses and credit by examination.
- (d) 12 semester credits earned in "pass-fail option" courses.

6. **Application for Degrees.** A candidate for a degree must, at the beginning of his last semester or summer session in residence, file a petition to be admitted as a candidate and must pay the diploma fee of \$5.00. (The Bachelor of Laws and Juris Doctor diploma fee is \$7.50.) Final dates for filing applications for degrees are February 20 for undergraduate degrees and March 1 for graduate degrees. If applications are received in the Registrar's Office after these dates, there is a penalty fee of \$5.00 if the student wishes to receive his degree with the next graduating class. No applications will be accepted after May 2 preceding commencement.

7. **Catalog Issue.**

- (a) A candidate, having received a class designation upon admission to the University, must fulfill all of the requirements stated in the catalog for that class, or the catalog of the year in which he graduates.
- (b) If a student changes his curriculum he must fulfill the requirements of the

catalog of the year he changes his curriculum or the catalog of the year in which he graduates.

- (c) When curriculum and catalog changes occur during the interval between his admission and graduation his academic dean may approve the appropriate catalog requirements which he must fulfill. Only catalogs in effect during this interval may be approved.
- (d) A student may not graduate under the requirements of any catalog in effect more than seven years prior to his year of graduation.

8. **Second Baccalaureate Degree.** After a student has met all of the requirements for any baccalaureate degree he may qualify for a second baccalaureate degree by completing the subject matter requirements for that degree and completing a minimum of one senior year in residence for each degree for a total of two senior years in residence (sixty-four semester hours).

A student may qualify for two baccalaureate degrees the same year and work toward the two degrees simultaneously if the following conditions are met:

- (a) The student must spend two senior years in residence and at least sixty-four semester credits must be earned during these two senior years.
- (b) If two baccalaureate degrees are to be conferred at the same commencement in two different colleges, the student must register in the two colleges his last semester in residence.
- (c) A plan must be presented to the dean or deans concerned and approved no later than the beginning of the second semester of the first senior year.
- (d) A total of 160 credits must be earned for any two baccalaureate degrees and this total shall apply to all divisions of the University.

This regulation does not cover the requirements for the Bachelor of Naval Science degree which are stated in the College of Letters and Science section.

9. **Undergraduate Major.** An undergraduate major consists of 16 to 20 credits of advanced work in one department (courses numbered 300 and above) except when specifically noted in the departmental statements.

10. **Advanced and Professional Degrees.** For the specific requirements for these degrees see the Graduate School section.

K. HONORS

A system of honors has been in effect in the University since 1907 except for the Graduate School. Honors are calculated on the student's entire record but are granted only to those who have completed one half of their required work in residence at the University of Idaho, except that as many as eight of these credits may be earned by extension, correspondence, credit by examination, and at another institution. This residence shall be their last two years of work (64 semester credits) unless the student had received prior approval from his academic dean to participate in some special program, such as a year abroad, conducted by another institution. In the College of Law, honors are based on grades in law courses only. Students receiving an average between 3.30 and 3.80 will be graduated *Cum laude* and those receiving an average of 3.80 or higher will be graduated *Summa cum laude*.

L. SCHOLASTIC PROBATION AND WARNINGS

1. **Scholastic Probation.** Scholastic probation is the condition of a student who is permitted under special restrictions to be in residence in the University after failing to meet certain scholastic requirements according to Regulation M. Eligibility to Reregister.

2. **Special Warning.** Instructors are expected to send written warnings for all students who are doing unsatisfactory work or who have excess absences. These warnings should also include one of the following notations: (a) student should be notified of this warning; or (b) student should confer with his dean (or adviser).

These warnings are routed through the Registrar's Office to the student's dean. In cases where the student should confer with his dean or adviser, the result of the conference is to be reported to the instructor concerned.

M. ELIGIBILITY TO REREGISTER

1. Any undergraduate student not making satisfactory progress toward graduation requirements (cumulative gradepoint average of 2.00 or better) is subject to probation or disqualification.
2. A student goes on probation automatically for the first semester he is more than 12 grade points deficient from a cumulative 2.00 gradepoint average. If he brings his cumulative gradepoint average within 12 gradepoints of a 2.00 average by the end of any semester he goes off probation automatically.
3. If a student fails to achieve the required cumulative gradepoint average by the end of the semester of probation he receives his first disqualification.
4. If a student passes in less than 10 credits and concurrently fails in more than one course he is disqualified at the end of the semester in which this failure occurs.
5. After any first disqualification a student may be reinstated (a) if he secures his dean's approval for immediate reinstatement; or (b) if he registers after the lapse of at least one semester without attendance at another institution.
6. After any second disqualification a student may be readmitted only by petition to and favorable action by the Administrative Council.
7. Once a student has been on probation (see No. 2) or has been disqualified once (see No. 3) any subsequent failure to meet the above academic requirements will result in disqualification even though in the meantime he might have removed himself from probation or disqualification by satisfactory work.
8. A student who has been readmitted after a first disqualification may continue to be readmitted without additional disqualifications, with the approval of his dean, as long as he attains a 2.00 or better average, or reduces the number of gradepoints he is deficient, for each semester following the first disqualification, even though his cumulative average may be more than 12 gradepoints deficient from a cumulative 2.00 average.
9. This regulation does not apply to the College of Law. See Part II for requirements for registration in the College of Law.
10. Non-resident courses, (correspondence, extension, and credit by examination) may not be computed in the determination of the eligibility to reregister.

N. ELIGIBILITY FOR EXTRACURRICULAR ACTIVITIES

1. This regulation governs the eligibility of the students who wish to participate in certain extra-curricular activities. The regulation does not apply to the following categories if the students concerned are not on conduct or scholastic probation (see item 3-b).
 - (a) Students who are engaged in activities which involve registration in a course for which the activity is required for all students registered.
 - (b) Students who participate in intramural sports
 - (c) Students who participate in intercollegiate athletics.

2. Eligibility rules will be applied to students who desire to participate in the following activities and projects:
 - (a) All elected ASUI and class officers, appointments to all ASUI committees, and appointments to joint student-faculty committees.
 - (b) Management or major leadership positions (both paid and unpaid) in all student organizations and enterprises as determined by the Office of Student Affairs in consultation with the deans of the respective divisions.
 - (c) Debating, dramatic or music projects of students not registered in a course for which participation in an activity is required.
 - (d) Other activities not covered in the above categories in which the participants represent the University of Idaho in public performances.
3. In order to be declared eligible to participate in the above categories of activities a student must:
 - (a) Be currently enrolled for at least 14 credits in the University of Idaho unless exceptions are made by the Administrative Council.
 - (b) Not be suspended or expelled from the University, not be on conduct probation, and not be on academic probation or be academically disqualified.
 - (c) Have a cumulative gradepoint average of at least 2.00.
4. No student may accept an elective or appointive office in any extracurricular or organization activity until he has a certificate of eligibility from the Office of Student Affairs. A student is automatically removed from any such office when he becomes ineligible for this certificate.
5. Before a student may represent the University of Idaho in intercollegiate athletics, he must comply with the eligibility regulations adopted by the Regents of the University in the spring of 1959 or of any conference with which the University may be affiliated.

O. ATTENDANCE

1. **General Attendance.** Students are responsible for maintaining regular attendance in courses in which they are enrolled. In all cases of absence the student is responsible for making satisfactory arrangements with his instructor for work missed. A student absent because of sickness or personal reasons, other than the excused absences referred to below, shall explain the cause of his absence to his instructor. His instructor shall decide whether his verbal explanation constitutes a legitimate excuse. An instructor may verify a student's report that he was ill and received treatment at the Student Health Service by phoning the Student Health Service.
2. **Excused Absences.**
 - (a) *Recognized Student Activities.* All excuses from classes for recognized student activities must be approved by the appropriate University committee in advance. These excuses will appear in the *Staff Letter*.
 - (b) *Dean's Excuses.* A leave of absence from the University may be granted for just cause by the dean of the college in which the student is enrolled.
 - (c) *For Reasons of Health.* Those students who are confined to bed in the University Hospital, or any other hospital with the university physician's knowledge, will automatically be reported in the *Staff Letter* with the appropriate dates indicated.
3. **Repeated Absences.** Instructors are responsible for reporting students who are repeatedly absent from class to the Registrar's Office.

P. CLASS RATING

The following table is used in determining the class rating of undergraduate students in the several divisions of the University.

Credits required for sophomore standing — 26 semester hours.

Credits required for junior standing — 60 semester hours.

Credits required for senior standing — 94 semester hours.

Students enrolled and classified during the first semester are not reclassified at the beginning of the second semester.

Q. FIELD TRIPS AND SPECIAL ACTIVITIES

Students registered for courses in which field trips are announced in the catalog are required to participate in the field trips, which are considered to be an integral part of the course. Costs involved are part of the educational expense which students are expected to bear.

All field trips must be completed two weeks before the beginning of the scheduled final examination period.

1. All requests for field trips (scheduled or unscheduled) and special activities must be submitted to the appropriate office or body at least two weeks prior to the event.

2. In each instance a request for a *field trip* must contain the following basic information:

(a) Name of organization or department requesting the trip. If it is in connection with a course, the number and title of the course.

(b) Location.

(c) Alphabetical list of students, giving full name. If the names of the participants cannot be submitted with the original request, they should be submitted in time to be published in the *Staff Letter* before the trip is taken.

(d) Dates and hours to be excused.

(e) Name of instructor or faculty sponsor.

3. Requests for *scheduled* field trips (i.e., those in connection with a class in which the field trip is authorized in the catalog course description) are sent directly to the Registrar's Office.

4. Requests for *unscheduled, class-related* field trips (i.e., those not provided for in the course description of the class) are submitted to the Faculty Council Committee on Examinations and Field Trips. In addition to the basic information required under "2" above, a justification for the proposed must be included.

5. Requests for trips that are not class-related are sent to the Administrative Council. In addition to the basic information required under "2" above, a justification for the proposed field trip must be included.

R. MISCELLANEOUS

1. **Classroom Use.** All meetings to be held in classrooms should be cleared with the Registrar's Office to avoid conflicts. Student organizations must have faculty sponsors request the use of classrooms.

2. **Minimum Number of Students for Which an Undergraduate Course May be Given.** Undergraduate classes in which less than five students register shall not be offered, except that this policy shall not be applied to undergraduate research projects, special problems, senior thesis, music courses 145-146, 147-148, 250, 265, 280, 365, and 480, and courses required for graduation

by one or more of those enrolled. This rule may be waived as to any particular course by the Administrative Council.

3. **Auditing of Accounts.** All funds for public purposes within the University, (except those of fraternities, sororities, and boarding house organizations), which are contributed to or collected by any students or member of the faculty shall be deposited with the university business manager, subject to withdrawal upon the written approval of the president, or of the business manager in the president's absence. An accounting of all receipts and expenditures in these funds shall be made by those responsible for their collection immediately after they shall have been disbursed. This accounting to be audited by the business manager.

4. **Alcoholic Beverages.** The University of Idaho does not permit the use, possession or serving of beer, wine, and other alcoholic beverages on the campus or in any University building, or in any fraternity, sorority or other officially recognized student living group.

Alcoholic beverages shall not be used or served at any function sponsored by any officially recognized student living group or any other student organization. This policy applies to all social functions or events sponsored by any student organization regardless of whether the event is on-campus or off-campus.

This policy does not attempt to prevent a student of legal age, acting as an individual citizen, from exercising his rights to purchase and consume alcoholic beverages (provided the individual conforms with the above University regulations). However, drunkenness or failure of a student to conduct himself in a responsible manner at all times will not be condoned.

5. **Smoking.** It is the policy of the University, in the interest of safety, that smoking in University buildings be restricted to designated places. It is an order of the Regents that in all institutions under the jurisdiction of the State Board of Education and Board of Regents, smoking be limited to places and areas designated by institutional authorities. Smoking is prohibited in all student classrooms, laboratories, and corridors.

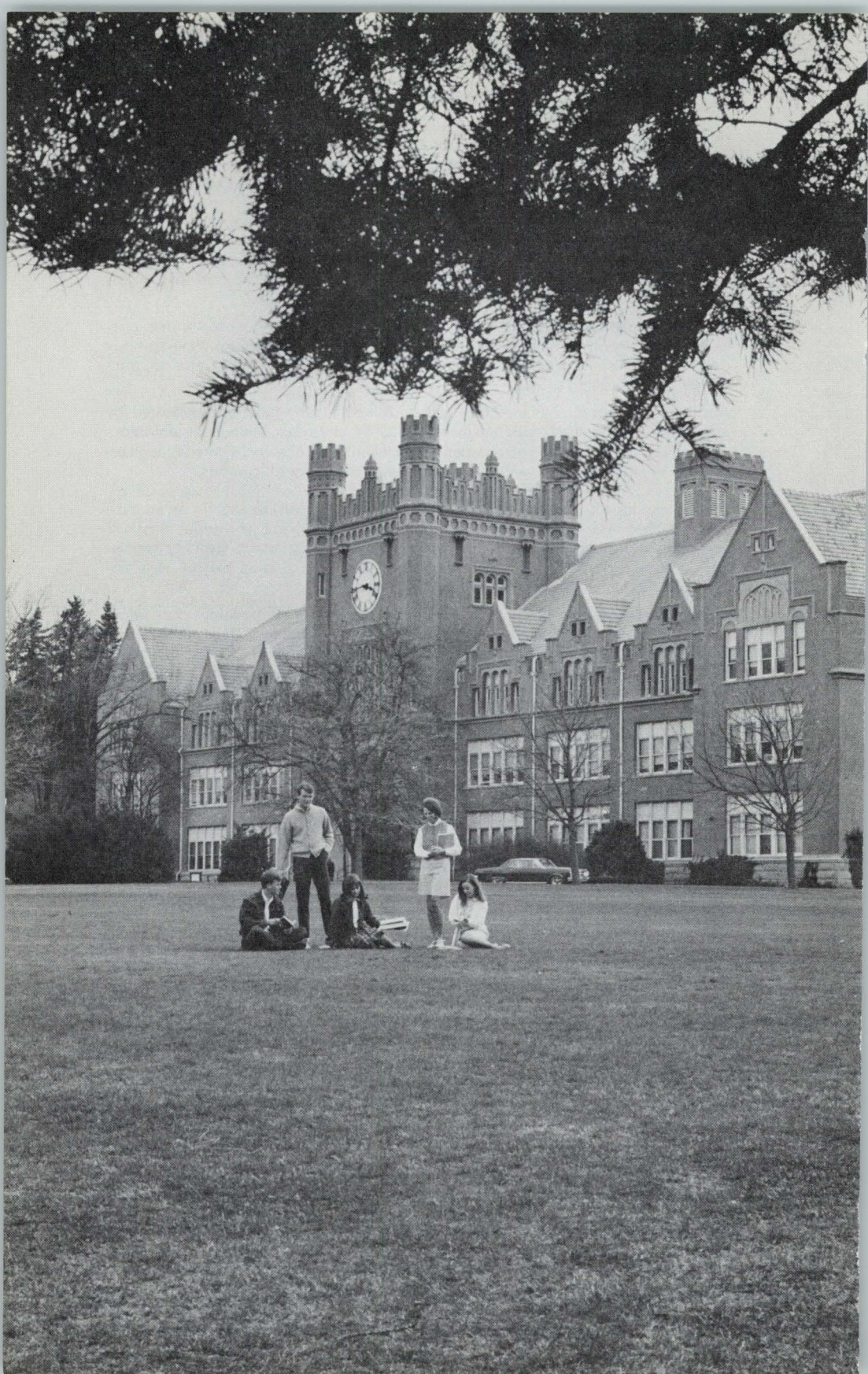
6. **Definition of the Term Campus.** The area to be defined by the word "campus" is that area between the Northern Pacific Railroad right-of-way and Taylor Avenue west of Main Street.

7. **Housing.** The University establishes such rules and procedures as may be necessary and appropriate to promote and assure acceptable living arrangements for all students living on or off the campus.

8. **Credit Requirements for Full-Time Students.** Undergraduate students will be required to carry 14 or more semester hours to be classified as full-time students. A graduate student is considered to be engaged in full-time study when registered for 12 semester credits of course and thesis work, or when registered for less than 12 credits but paying full enrollment fees and certified by his major professor (to the graduate dean) as engaging in the equivalent of 12 credits of study in the pursuit of course work, research, preparation for examinations, and other activities of an academic nature.

9. **Academic Year.** An academic year is defined as thirty-two semester hours for undergraduate students.

10. **Regulations of Conduct.** These regulations are published in the *ASUI Student Handbook*.



2

ACADEMIC DIVISIONS

COLLEGE OF AGRICULTURE

James E. Kraus (Dean), Don A Marshall (Associate Dean).

Agricultural Biochemistry and Soils
Agricultural Economics
Agricultural Education
Agricultural Engineering
Animal Science
Bacteriology

Dairy Science
Entomology
Food Science
Plant Sciences
Poultry Science
Veterinary Science

IN COMPLIANCE WITH enabling legislation of Congress in the Morrill Act approved July 2, 1862, and the Hatch Act approved March 2, 1887, the Territorial Legislature founded the University of Idaho, January 30, 1889, as the land grant university of the Territory. The Territorial Act was later incorporated into the Constitution of the State of Idaho.

Pursuant to the above acts, 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 fruits of the research and service to all parts of the state. (See the special sections devoted to the Agricultural Experiment Station and Agricultural and Home Economics Extension in Part IV.)

FACILITIES OF THE COLLEGE

The facilities for agricultural instruction consist of the Agricultural Science Building, used as a central office, classroom and laboratory building; Dairy Science Building; Dairy Science Center; Agricultural Education and Field Crops Building; Laboratories in the Life Science Building, Kirtley Engineering Laboratory, Engineering Building, Agricultural Engineering Building, Veterinary Science Building, and Disease Research Barn; greenhouses; Entomology Building and H. C. Manis Entomology Research Unit; dairy cattle, sheep, swine, and beef cattle barns, meats laboratory, judging pavilion, poultry brooder, and laying houses.

A number of poultry, dairy cattle, beef cattle, sheep, and swine representing several breeds is 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.

GRADUATE STUDY

In the College of Agriculture graduate study leading to the master's degree is offered in agricultural biochemistry, agricultural economics, agricultural education, animal science, bacteriology, dairy science, entomology, food science, plant sciences, poultry science, soils, and veterinary science.

Graduate study leading to the degree of Doctor of Philosophy is available in agricultural biochemistry, bacteriology, entomology, plant sciences, and soils. Students must fulfill the requirements of the Graduate School and the department in which they study. Consult the graduate bulletin for further information.

GENERAL REQUIREMENTS FOR GRADUATION

University Requirements

See general regulation "J" in Part I for requirements which all students in the University must meet.

General College Requirements

Candidates for the degree of Bachelor of Science in Agriculture must complete a total of 132 semester credits.

Four major curricula are offered in the College of Agriculture. The general requirements for graduation in these majors are listed below. Additional credits in specific subject matter areas to satisfy departmental requirements and meet the student's objectives are required.

The general subject matter areas listed in the major curricula outline are defined as follows:

A. *HUMANITIES AND SOCIAL SCIENCES* shall consist of courses in anthropology, English, foreign languages, history, philosophy, political science, psychology, sociology, and speech.

B. *BIOLOGICAL SCIENCES* shall include Biol 201, Introduction to the Life Sciences, 4 credits; and Biol 202, General Zoology, 4 credits; or Biol 203, General Botany, 4 credits. *Note:* Biol 100, General Biology, 4 credits; and Biol 150, Heredity and Man, 3 credits, *may not* be used to satisfy the biological sciences requirement. Credits in bacteriology may be used to satisfy the requirements in biological sciences or agriculture, but the same courses may not be used to satisfy both.

C. *PHYSICAL SCIENCES* shall include a minimum of 8 credits in chemistry in all curricula except agricultural economics in which one additional course in mathematics may be substituted for one course in chemistry. AgBiC 205, General Agricultural Biochemistry, 4 credits, may be used to satisfy part of the physical sciences requirement in the agricultural science curriculum.

CURRICULA

The curricula presented below have been developed to guide the student in the preparation of his course of study. A list of core courses is supplied by each department, and electives or supporting courses are selected with the approval of the major professor.

AGRICULTURAL SCIENCE (B.S.Ag.)

This curriculum is designed to prepare students for professional careers in scientific agriculture as farm operators, technical farm advisers, extension agents, research workers, or other professional careers. Students selecting this curriculum may major in any one of the following:

Agricultural Biochemistry
 Animal Industries — with options in:
 Animal Science
 Dairy Science
 Poultry Science
 Range Livestock Management
 Bacteriology
 Entomology
 Food Science
 Plant Sciences
 Soils
 Veterinary Science

Specific Courses Required	Credits
AgEcon 101 Ag and Its Soc & Econ Environ	3
Math 140-141 Coll Algebra and Anal Trig	5
Speech	2
Ag 400 Senior Seminar	1
Eng 101-102 English Composition	6
Advanced Writing	3
PE 131 & 233 Freshmen & Soph Phys Educ	2

General Requirements

Biological Sciences	
Biol 201 Introduction to Life Sciences	4
Biol 202 Gen Zool, or Biol 203 Gen Botany	4
Biology electives	7
Electives	
Agriculture	12
Unspecified	36-38
Humanities and Social Sciences	14
Major Field	20
Chemistry	11-13
TOTAL	132

Special Options and Requirements in Agricultural Science Curriculum

1. Students in range livestock management are required to complete 6 credits in range management courses.
2. Students in agricultural biochemistry, soils, and veterinary science may substitute 20 credits in physical and biological sciences for courses in agriculture.
3. Students in entomology may substitute 9 credits in forestry for courses in agriculture.
4. Women students in veterinary science need not take PE 101 Healthful Living.
5. Two options are available in veterinary science:

VETERINARY SCIENCE OPTION I — Completion of 99 credits, including 8 credits in physics, under this curriculum at the University of Idaho; plus the successful completion of the first year of study (at least 33 credits in approved courses) at a recognized college of veterinary medicine to satisfy the senior year in residence.

VETERINARY SCIENCE OPTION II — Completion of the 132 credits required under the agricultural science curriculum.

AGRIBUSINESS (B.S.Ag.)

This curriculum is designed to prepare students for management responsibilities on farms and in farm-related businesses and enterprises.

Specific course selections in agricultural economics are to be made in consultation with the Department of Agricultural Economics. Students selecting this curriculum may major in any one of the following:

Agricultural Mechanization
 Agricultural Economics
 Animal Industries — with options in:
 Animal Science
 Dairy Science
 Poultry Science
 Food Science
 Plant Sciences
 Soils

Specific Courses Required	Credits
AgEcon 101 Ag and Its Soc & Econ Environ	3
Math 140-141 Coll Algebra and Anal Trig	5
Speech	2
Ag 400 Senior Seminar	1
Eng 101-102 English Composition	6
Advanced Writing	3
PE 131 & 233 Freshman & Soph Phys Educ	2
Biol 201 Introduction to Life Sciences	4
Biol 202 Gen Zool, or Biol 203 Gen Botany	4

General Requirements

Electives	
Agriculture	12
Unspecified	15
Agricultural Economics	18
Business and Economics	15
Major Field	20
Humanities and Social Sciences	14
Chemistry	8
TOTAL	132

AGRICULTURAL EDUCATION (B.S.Ag.)

This is the course of study approved by the State Board for Vocational Education for the preparation of high school vocational agriculture teachers. Graduates who have completed at least twenty (20) credits in agricultural education, plus the state certificate requirements which include one teaching minor of twenty (20) credits, are eligible for an Idaho standard secondary certificate valid for five years.

Specific Courses Required	Credits
AgEcon 101 Ag and Its Soc & Econ Environ	3
Math 140-141 Coll Algebra and Anal Trig	5
Speech	2
Ag 400 Senior Seminar	1
Eng 101-102 English Composition	6
Advanced Writing	3
PE 131 & 233 Freshman & Soph Phys Educ	2
Psych 205 or 206 Developmental Psychology	3
Biol 201 Introduction to Life Sciences	4
Biol 202 Gen Zool, or Biol 203 Gen Botany	4

(Continued on next page)

AGRICULTURAL EDUCATION

(Continued)

General Requirements

Electives	
Agriculture	44
Unspecified	13
Humanities and Social Sciences	14
Major Field	20
Chemistry	8
	<hr/>
TOTAL	132

AGRICULTURAL ECONOMICS (B.S.Ag.)

Agricultural economics prepares the student in the principles and analytical methods of economics as they apply to the businesses of agriculture. Course work is designed for the individual student's vocational objective whether it be farming, management of an agriculturally related business, finance, government, or graduate school.

Specific Courses Required

	Credits
AgEcon 101 Ag and Its Soc & Econ Environ	3
Math 140-141 Coll Algebra and Anal Trig	5

Speech	2
Ag 400 Senior Seminar	1
Eng 101-102 English Composition	6
Advanced Writing	3
PE 131 & 233 Freshman & Soph Phys Educ	4
Biol 201 Introduction to Life Sciences	4
Biol 202 Gen Zool, or Biol 203 Gen Botany	4

General Requirements

Electives	
Agriculture	12
Unspecified	27
Humanities and Social Sciences	14
Chemistry	8
Major Field	20
Business and Economics	21
	<hr/>
TOTAL	132

AGRICULTURAL ENGINEERING (B.S.Ag.E.)

For this curriculum, see the College of Engineering section.

BACTERIOLOGY (B.S.)

For this curriculum, see the College of Letters and Science section.



COLLEGE OF BUSINESS AND ECONOMICS

David D. Kendrick (Dean), Phyllis Veien (Secretary of the College Faculty).

Accounting
Business and Applied Science
Business and Law
Economics

Finance
General Business
Management
Marketing

Office Administration

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 plan to make business their career. Forces in the modern business world, which the College recognizes through curriculum changes, are 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, accounting research techniques, and secretarial practice. In common with other university schools of business, however, the College avoids extremely specialized instruction in business practices. Since such practices vary greatly among the business firms and change rapidly, they can in most cases be learned on the job.

The University has three major objectives; namely, teaching, research and service. Through the Bureau of Business and Economic Research we are able to contribute to the advancement of knowledge about our state and its business activities. In addition, faculty members and students are given 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 DEGRESS OFFERED

Undergraduate

Majors are offered leading to the degree of Bachelor of Science in Business in the fields of accounting, business and applied science, business and law (combined B.S.Bus. and J.D.) 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.

Graduate

The Graduate School of the University offers work toward the degrees of Master of Science and Master of Business Administration with majors available both in business and in economics. Students must fulfill the requirements of the Graduate School and of the department in which they study. Consult the graduate bulletin 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 abreast 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

In addition to the all-University requirements for graduation (see general regulation "J" in Part I), including Eng 101-102, English Composition, and physical education, candidates for the degree of Bachelor of Science in Business must satisfy the following:

General College Requirements

A. **BASIC SKILLS.** It is expected that students in this College will familiarize themselves with the operation of the typewriter and other commonly-used business machines.

B. **MATHEMATICS.** Math 111, Fundamentals of Mathematics, or 140-141, College Algebra and Analytic Trigonometry.

C. **FOREIGN LANGUAGE/MATHEMATICS-ENGLISH.** The basic requirement is proficiency in one foreign language, equivalent to that gained by completion of four semesters of college courses (through the intermediate level). This requirement may be satisfied by presenting four high school units in one foreign language. A student presenting two high school units may fulfill the requirement by completing a second year of the same language in the University. (Students may substitute Eng 253 and an additional semester of mathematics, Math 112 or 180, for the foreign language requirement.) *Note:* The requirements specified in this item normally will be completed during the freshman and sophomore years. In case of scheduling difficulties, adjustments may be made with the consent of the student's counselor.

D. **NON-BUSINESS COURSES.** In addition to the courses specified above (English, foreign language, mathematics, and physical education), the following non-business courses are required: Eng 313, Business Writing; Sp 131, Fundamentals of Speech; six credits in literature; four credits in natural science (physical or biological science); six credits in social science, psychology, or economic geography; and additional courses, including those required in the major, sufficient to bring the total taken outside the fields of business and economics to 52 credits (40 per cent of the total of 128 credits required for the degree). *Note:* Economic principles and economic history may be counted in either the business or non-business groups.

E. BUSINESS AND ECONOMICS CORE REQUIREMENTS.

Course	Credits
<i>Accounting</i> , including Principles of Accounting (Actg 131-132)	9
<i>Business</i> , including Business Lectures (Bus 101), Statistics (Bus 231), Financial Management (Bus 301), Introduction to Management Theory (Bus 311), Marketing (Bus 321), and Business Law (Bus 365)	17
<i>Economics</i> , including Principles of Economics (Econ 251-252). Inter-	

mediate. Microeconomic Analysis (Econ 321), and Intermediate Macroeconomic Analysis (Econ 372) 15
 Plus additional courses in these areas, including courses required in the major, sufficient to bring the total to 52 credits. (See note at the end of item "D" above.)

F. **MINIMUM GRADE POINT.** Students registered in the College are required to achieve a minimum overall average of 1.85 grade points for the first two academic years before being permitted fully to pursue upper-division work. Specifically, this means that a student earning an overall average of less than 1.85 grade points for a minimum of 60 credits may not register for more than one upper-division course (those numbered 300 and above) in any one semester until his cumulative grade point average is raised to this minimum level.

CURRICULA

Below are stated the requirements in each of the majors. Each student is assigned a counselor who will assist in the planning of a program through the use of a check sheet for each individual; however, the student has the final responsibility for the completion of all requirements.

As noted above, each curriculum requires a total of 128 credits for graduation.

Where business or economics electives are specified, courses numbered 300 or above are required. Hist 431, Economic History of the United States, and Hist 461, Economic History of Europe, may be applied toward these requirements.

Students accepted for advanced ROTC are assured opportunity for an adjustment in their program to permit scheduling of the 12 credits in such courses during the junior and senior years.

ACCOUNTING (B.S.Bus.)

This curriculum, in common with many others requiring specialized preparation offers many opportunities for the college man and woman. The program emphasizes cost accounting, corporation accounting, auditing, public accounting, and taxation.

Required Course Work

General requirements, plus:-

Course	Credits
Actg 231-232 Interm Accounting	6
Actg 331-332 Advanced Accounting	6
Actg 385 Costs: Concepts & Methods	3
Actg 483 Federal & State Taxes	3
Actg 486 Costs: Anal & Controls	3
Actg 493 Auditing Theory	3
Bus 233 Intro to Computers	3
Bus 432 Quant Meth in Bus & Econ	3
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. Most students interested in one of the above fields find it advantageous to take an intensive and complete technical course in the respective college offering such work. On the other hand, there are some students who plan to enter a field of business where complete technical preparation is not essential, but where some technical knowledge is highly desirable. The business and applied science major offers an opportunity to combine a major in business with study in one of the technical fields.

Required Course Work

General requirements, plus: 18 credits in approved technical electives in one of the following fields: agriculture, engineering, forestry, or mining. (A list of the courses required in each area may be obtained from the dean of the College of Business and Economics.)

BUSINESS AND LAW (Combined B.S. Bus. and J.D.)

For students who wish to prepare both in business and law. Students in this curriculum register in the College of Business and Economics for their first four years, and in the College of Law for the last two. The B.S.(Bus.) degree is conferred upon the completion of the required courses of the first four years, and the J.D. at the end of the full six years.

Required Course Work

General requirements, plus: the completion of 98 credits by the end of the junior year, and the satisfactory completion of the first year of the curriculum in the College of Law (30 credits).

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

For this curriculum, see the College of Education section.

ECONOMICS (B.A.)

For this curriculum see the College of Letters and Science section.

ECONOMICS (B.S.Bus.)

Designed to prepare students for professional careers as economists in private business, government service, or teaching.

Required Course Work

General requirements, plus: 15 additional credits in economics courses numbered 300 or above; and 15 additional credits in social sciences (other than economics), geography, psychology or mathematics, with not more than 9 credits in any one field.

FINANCE (B.S.Bus.)

Provides an excellent background for the fields of banking, investments and insurance. The student may elect to emphasize one of these areas of finance.

Required Course Work

General requirements, plus:

Course	Credits
Bus 302 Finan Institu & Credit	3
Bus 401 Investments	3
Bus 403 Insurance	3
Bus 436 Bus & Econ Fluctuations	3
Econ 409 Public Finance	3

GENERAL BUSINESS (B.S.Bus.)

Intended for those students who prefer all-around preparation in business management to specialization in one field.

Required Course Work

General Requirements.

MANAGEMENT (B.S.Bus.)

Offered in recognition of the requirements of modern business for the development of more effective managerial skills. The 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

General requirements, plus:

Course	Credits
Bus 411 Organization Theory	3
Bus 413 Human Rel in Business	3
Bus 414 Management Policy	3
Bus 432 Quant Meth in Bus & Econ	3
And three of the following courses:	
Bus 233 Intro to Computers	3
Bus 312 Industrial Management	3
Bus 412 Personnel Management	3
Bus 439 Syst Anal & Simulation	3
Bus 441 Labor Econ & Labor Rel	3

MARKETING (B.S.Bus.)

Primarily for students contemplating a career with consumer or industrial goods manufacturers, retail or wholesale distributors, advertising and marketing research organizations, and firms in real estate. Certain modifications of this major may be arranged for students wishing to prepare for advertising.

Required Course Work

Course	Credits
Bus 323 Prin of Advertising	3
Bus 421 Marketing Problems	3
Bus 422 Mktg Research & Anal	3
Bus 423 Retail Merchand Fund	3

Recommended electives:

Bus 233 Intro to Computers	3
Bus 324 Sales Management	3
Bus 424 Retail Merchand Prob	3
Bus 436 Bus & Econ Fluctuations	3

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

Required Course Work

General requirements, plus:

Course	Credits
Bus 323 Prin of Advertising	3
Bus 422 Mktg Research & Anal	3
Bus 461 Real Estate	3
Bus 462 Real Property Appraisal	3
AgEcon 361 Farm Appraisal	3

Recommended electives:

Arch 265 Materials and Methods	2
Arch 376 History of Architecture	2
AgEcon 451 Land Resource Econ	3
Geog 470 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.)

Designed to equip the student to enter the field of business through secretarial work.

Required Course Work

General requirements (with the exception of the third semester of accounting and Econ 321 and 372), plus:

Course	Credits
OAd 101-102-103 Typewriting I-II-III	6
OAd 115-116 Shorthand I-II	8
OAd 185 Office Machines	2
OAd 271-272 Shorthand III-IV	6
OAd 395-396 Secretarial Procedures	6
Business or economics elective	3

COLLEGE OF EDUCATION

Everett V. Samuelson (Dean), Thomas O. Bell (Associate Dean), Margaret Walker (Secretary of the College Faculty).

Education

Elementary Education
Secondary Education
Special Education
Business Education
Distributive Education
General Business
Office Occupations
Industrial Education
Industrial Arts Education
Technical Education
School Administration
Library Science

Health, Physical Education and Recreation

Health
Physical Education
Recreation

Psychology

Guidance and Counseling
Psychology

Special Area

Vocational Education
Trade and Industrial
Vocational-Technical

THE COLLEGE OF EDUCATION was organized as an independent unit of the University in June, 1920. It is the principal teacher-education division and consists of the departments and fields of instruction shown above.

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 the program of preparation for educational service are fitted by preparation and personal qualities for this important work. Once admitted, the student undertakes a program which has as its objectives 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 he will teach, or in the area in which he will serve.

Besides preparing personnel for the schools, the College provides educational leadership for the people of the state, to the state educational 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 is fully accredited by the National Council for 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 I.

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 present a scholastic average of 2.0 (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 the College of Education are the Bachelor of Science in Education and the Bachelor of Science in Business Education. Undergraduate curricula are available in elementary education, secondary education, business education, industrial arts education, physical education, recreation, special education, technical education, and vocational teacher education. The specific requirements for these curricula are listed as the concluding portion of this catalog section.

Graduate

Graduate studies in education are offered by the Graduate School of the University and include a special planned fifth-year program in teacher education, as well as work toward advanced degrees and professional certificates in the various departments and fields of the College. Upon the successful completion of the appropriate programs of studies, the following master's and doctoral degrees are conferred: Master of Science, Master of Education, Master of Arts in Teaching, Doctor of Education, and Doctor of Philosophy.

Studies at the master's level are offered in education, business education, industrial education, physical education, and psychology. Under the education major, concentrations are offered in elementary education, secondary education, administration, special education, and guidance and counseling. For students concentrating in secondary education, options are permitted in most subjects taught in junior and senior high schools.

Post-master's-degree programs are offered leading to the Professional Certificate in Education. Concentrations currently offered are: administration, guidance and counseling, school psychology, and special education.

Doctoral studies in education may emphasize elementary or secondary education, administration, guidance and counseling, and special education.

TEACHER CERTIFICATION

Students who complete the four-year teacher education program at the University are eligible to receive the Idaho standard elementary, or the standard secondary school 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 or the advanced secondary school certificate. Students who complete the master's program in guidance and counseling are eligible for the Idaho pupil personnel services certificate. Students may qualify for the Idaho school librarian certificate by completing the requisite courses in library science.

Recommendation for Teacher Certification

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

CONTINUANCE IN TEACHER EDUCATION

College of Education Students

Upon completion of the first semester of the sophomore year, or 40 semester credits, all students in the College must make application for continuance in the teacher education program. A standing committee of the College reviews each applicant's total record and presents its recommendation to the dean. The approval of the dean is required for continuance in the program.

Students in Other Divisions

Students enrolled in other divisions of the University who plan to complete the requirements for certification should declare their intention as early as possible

and assure themselves that they are following the prescribed procedures for admission to the teacher education program. Such students should consult their respective deans during the sophomore year and obtain the necessary application forms and approvals. Admission to the teacher education program does not carry with it permission to enroll in student teaching. Additional procedures and requirements apply as noted elsewhere in this section and as noted in the prerequisites to the specific student teaching courses.

SCHOOL VISITATION AND OBSERVATION

Opportunity is provided for students in teacher education to visit selected classes in the Moscow Public Schools and observe the functioning of regular classroom activity. A teacher-aide program in connection with the foundations class (Ed 287) provides a half-day block per week for experience as a teacher helper or assistant.

There is provision also for students in teacher education to visit and observe public schools in operation for one, two or three weeks. This is voluntary experience that should result, for those who participate, in increased understanding of teaching methods and practices as found in our public schools. Students who wish to participate should consult the head of the Department of Education for more specific information.

STUDENT TEACHING

Admission

For admission to the student teaching courses (Ed 430, 431, 432, 435, 445, and 480), each student must have satisfied the following requirements: (1) have been admitted to, or continued in, the teacher education program of the College of Education or of his own division of the University; (2) have an overall grade point average of at least 2.25; (3) have satisfied the other prerequisites stated in the description of the particular student teaching course for which he wishes to enroll; and (4) have applied for admission to student teaching by the deadline specified, i.e., by December 1 of the school year preceding the school year during which he will student teach. Consult the director of student teaching for specific information.

The Program

Student teaching is done in cooperating Idaho public schools so that students may obtain experience under typical school conditions. Normally it is scheduled for nine weeks of full-time teaching in designated centers of the state. Students should plan their schedules for the senior year so that a semester will be free for nine weeks of full-time enrollment in student teaching and nine weeks in accelerated courses.

GENERAL REQUIREMENTS FOR GRADUATION

University Requirements

See general regulation "J" in Part I for the all-university requirements for graduation. As a part of these broad requirements, students must complete Eng 101-102, English Composition, and one physical education activity course each semester for four semesters. Women students are also required to take PE 101, Healthful Living, unless excused.

General College Requirements

All candidates for the baccalaureate degree in the College of Education must complete a total of 128 semester credits, of which at least 36 must be in upper-division courses (those numbered 300 or above). A minimum grade point average of at least 2.0 is required in all specified professional courses and in the major secondary school teaching field. The following uniform course requirements apply to all undergraduate students in the College:

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 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)** — English composition and literature. Fr
6/27

2. **Social Science (9-12 credits)** — Shall include at least one course in American history or American government. Students preparing to teach at the secondary level must complete a minimum of 9 credits in this area; students preparing to teach at the elementary level must complete a minimum of 12. Fr
6/27

3. **Science-Mathematics (12-14 credits)** — In order to apply toward this requirement, science courses must include laboratory work (biological, physical or earth science only). Students preparing to teach at the secondary level must complete a minimum of 12 credits in science and/or mathematics. Students preparing to teach at the elementary level are required to include Math 135-136. Number System and its Structure, and 8 additional credits from two or more areas of natural science. Fr
6/27

B. **OTHER UNIFORM REQUIREMENTS (13 credits):**

Course	Credits
Education Lectures (Ed 101) *	1
Foundations of Education (Ed 287)	4
Introduction to Psychology (Psych 100)	3 ✓
Development or Educational Psychology (Psych 205 or 206 or 421) **	3
Fundamentals of Speech (Sp 131)	2 ✓

CURRICULA

The curricula presented below have been developed to guide the student in the preparation of his course of study. Each student should also consult the *Teacher Education Guide*, which has been prepared with the cooperation of the academic departments of the University and contains the suggested course content for teaching majors and minors.

Since the College reserves the right to approve or disapprove the content of all proposed teaching majors and minors, students should confer closely with their advisers and with the academic departments concerned in the selection of these courses.

ELEMENTARY EDUCATION (B.S.Ed.)

General requirements for students preparing to teach at the elementary level, plus:

1. Core Courses

Credits

Ed 320 or 322 Prim or Interm Lang Arts Meth	3
Ed 326 Elem Sch Math Ed	3
Ed 421 Elem Sch Soc St Meth	2
Ed 444 Elem Sch Sc Meth	2
Ed 445 Student Teaching Seminar	0
Ed 430 Elem Sch St Teaching	9

2. Additional Methods

Select 5 credits from the following:	
Ed 275 Elem Sch Art Meth	2
Ed 381 Elem Sch Mus Meth (Prereq: Mus 120)	2
Ed 434 Children's Literature	3
PE 252 Elem Sch Phys Ed	2
PE 316 Elem Sch Health Meth	2

3. Art and/or Music

Select 3 credits from non-methods courses in art and/or music.

(Continued on next page)

* Students transferring into the College after achieving junior standing need not take Ed 101.

** Students preparing to teach at the secondary level normally take Psych 206; those preparing to teach at the elementary level normally take Psych 205.

4. Elementary Education Teaching Majors and Minors.

Select option A, B, or C below:

A. TWO MINORS OPTION: One 20-credit single-subject or composite teaching minor, and one 15-credit single-subject teaching minor. Single-subject minors are permitted in art, coaching,* drama, English, industrial arts education, journalism, library science, mathematics, military, music**, physical education, psychology, special education, a science, a social science, a foreign language.

Composite minors (20 credits minimum) are permitted in the following areas:

(1) **English** — Includes English composition and may include a course in speech.

(2) **Science** — From courses in bacteriology, biology, botany, chemistry, entomology, physical geography, geology, physics, and zoology. At least 8 credits must be in laboratory courses. (A minor may be offered from any one of these areas or from any combination thereof.)

(3) **Social Science** — From courses in anthropology, economics, geography (excluding physical geography), history, philosophy, political science, and sociology. A social science minor must include at least 3 credits in American history or American government. (A minor may be offered in any of these areas or any combination thereof.)

B. SINGLE-SUBJECT MAJOR: One 30-credit, single-subject teaching major selected from the areas listed under the secondary education curriculum below.

C. COMPOSITE MAJOR: One 40-credit, composite major selected from the areas listed under the secondary education curriculum below.

*The coaching minor is not open to students who are majoring or minoring in physical education.

**Basic courses in the music teaching minor are Elements of Music Theory (Mus 121-122) and Music in Western Civilization (Mus 321-322).

SECONDARY EDUCATION (B.S.Ed.)

General requirements for students preparing to teach at the secondary level plus:

1. Core Courses	Credits
Ed 314 Gen Sec Sch Meth	2
Ed 315 or 316 or 317 or 318 or 319 or 341	2
Sp Meth (or another approved sec special meth course)	2
Ed 445 Student Teaching Seminar	0
Ed 431 Sec Sch St Teaching	9

Plus completion of option A, B, C, or D below:

- A. Two 30-credit teaching majors.
- B. One 40-credit teaching major with one 20-credit teaching minor.
- C. One 30-credit teaching major with one 20-credit and one 15 credit teaching minor.
- D. One 60-credit teaching major.

2. Teaching Majors for Secondary Education:

ART — Either (a) 30 credits in art, or (b) a total of 40 credits, including at least 20 credits in art, and the remainder in strongly related courses.

BIOLOGICAL SCIENCES — 40 credits from among bacteriology, biology, botany, entomology, and zoology, including at least 24 credits from among biology, botany and zoology

CHEMISTRY — 30 credits in chemistry.

DRAMA — 30 credits in drama

DRAMA-SPEECH — 40 credits in drama and speech.

EARTH SCIENCES — 40 credits in geography and geology.

ENGLISH — Either (a) 30 credits in English, including 441, American English, or (b) 40 credits from among English, drama, journalism, and speech (this 40-credit option must include Eng 441 and 21 additional credits in English).

FOREIGN LANGUAGE — 30 credits in a single language commonly taught in secondary schools.

GENERAL SCIENCE — 40 credits from among biological, physical and earth science, including a minimum of 18 credits in one of these fields.

HISTORY — 3 credits in American government, 15 credits in American history and 12 additional credits in history.

MATHEMATICS — 30 credits in mathematics.

PHYSICAL SCIENCE — 40 credits, including at least 18 credits in chemistry or physics, plus electives from chemistry, physics and geology.

PHYSICS — 30 credits in physics.

PSYCHOLOGY — 30 credits in psychology. Since this field is not recommended for secondary school teaching, students electing this area should plan to offer 20-credit teaching minors in two usual secondary school teaching fields. Psychology is recommended primarily for students planning to pursue graduate work in psychology or in guidance and counseling.

POLITICAL SCIENCE — 30 credits in political science.

SOCIAL SCIENCE — 40 credits including 9 credits in American history; 9 additional credits in history; and 3 credits in each of the following: American government, economics, geography, and sociology; plus 10 credits chosen from among anthropology, economics, geography, history, philosophy, political science, and sociology.

SPEECH — 30 credits in speech.

ZOOLOGY — 30 credits in zoology.

3. Teaching Minors for Secondary Education

With the exception of the minor in socio-anthropology, all of the courses constituting a minor under the secondary education curriculum must be from the same subject, i. e., all art courses, all history courses, etc. The socio-anthropology minor includes courses in sociology and anthropology. Single-subject minors are permitted in art, biological science, botany, chemistry, coaching,* drama, earth science, English**, a foreign language, geography, health education, history***, industrial arts education, journalism, library science, mathematics, music****, physical education, physics, political science*****, psychology, socio-anthropology, special education, speech and zoology.

*The coaching minor is not open to students who are majoring or minoring in physical education.

**Must include Eng 441, American English.

***Must include at least 6 credits in American history and 3 credits in American government.

****Basic courses in the music teaching minor are Mus 121-122, Elements of Music Theory, and Mus 321-322, Music in Western Civilization.

*****Must include 6 credits in American government, 6 credits in American history, and 3 credits in comparative government.

AGRICULTURAL EDUCATION (B.S. Ag.)

For this curriculum, see the College of Agriculture section.

ART EDUCATION (B.A., B.F.A.)

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

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

General requirements for students preparing to teach at the secondary level, plus:

Course	Credits
Actg 131-132 Prin of Accounting	6
Bus 301 Financial Management	3
Bus 365 Business Law	3
BusEd 491-492 Teaching Bus Ed I-II or BusEd 493 and 497 Teaching Distr Ed and Coord Techniques	5-6*
Econ 251-252 Prin of Economics	6
Ed 314 Gen Sec Sch Meth	2
Ed 445 Student Teaching Seminar	0
Ed 431 Sec Sch St Teaching	9
Eng 313 Business Writing	3
Geog 112 Economic Geography	3
OAd 103 Typewriting III	0-2**
OAd 116 Shorthand II	0-4**
OAd 185 Office Machines	2
Plus the satisfactory completion of a 15-credit option in office occupations, general business, or distributive education, and the completion of one 20-credit teaching minor selected from those listed under the secondary education curriculum.	

*General business option students take BusEd 491 for 2 credits.

**May be waived by examination. Shorthand is not required in the distributive education or general business options.

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

For this curriculum, see the College of Letters and Science section.

INDUSTRIAL ARTS EDUCATION (B.S.Ed.)

General requirements for students preparing to teach at the secondary level, plus:

Course	Credits
Ed 314 Gen Sec Sch Meth	2
Ed 445 Student Teaching Seminar	0
Ed 431 Sec Sch St Teaching	9
IEd 130 Basic Electricity	4
IEd 131 Basic Electronics	4
IEd 140 Woodwork I	3
IEd 250 General Metals	3
IEd 251 Plastics	2
IEd 310 Maint of Tools & Equip	3
IEd 420 Evaluation in I Ed	3
IEd 451 Sch Shop Planning & Admin	3
IEd 462 I Ed Curriculum	3
IEd 472 I Ed Methods	3

Engr 101 Engineering Graphics	2
ME 253-254 Mat Proces Lab I-II	2
AgE 101 Oxy-Acetylene Welding	1
AgE 107 Arc Welding	1
AgE 309 Gas Engines & Tractors	3
Elective shop courses	5-20
Students completing less than 60 credits in industrial education and closely related courses must complete one of the 20-credit teaching minors listed under the secondary education curriculum.	

MUSIC EDUCATION (B.Mus.)

For this curriculum, see the College of Letters and Science section.

MUSIC EDUCATION (B.Mus.Ed.)

This curriculum has been transferred to the College of Letters and Science; however, students who were majoring in music education in the College of Education prior to the beginning of the 1969-70 academic year may continue in the B.Mus.Ed. program and receive that degree. See requirements under the music education major (B.Mus.) in the College of Letters and Science section of this catalog.

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

General requirements for students preparing to teach at the secondary level, plus:

Course	Credits
Ed 314 Gen Sec Sch Meth	2
Ed 445 Student Teaching Seminar	0
Student Teaching (9 credits in Ed 431, or 6 credits in 431 and 3 credits in 435)	9
PE 427 Meth and Mat in Phys Ed	2

Plus one of the following options:

A. 40 credits in approved courses from among health, physical education and recreation; and one 20-credit teaching minor selected from those listed under the secondary education curriculum.

B. 30 credits in approved physical education courses, and one 20-credit and one 15-credit academic minor selected from those listed under the secondary education curriculum.

C. 30 credits in approved physical education courses, plus an additional teaching field of 30 credits.

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

General requirements for students preparing to teach at the secondary level, plus:

Course	Credits
Ed 314 Gen Sec Sch Meth	2
Ed 445 Student Teaching Seminar	0
Student Teaching (9 credits in Ed 431, or 6 credits in 431 and 3 credits in 435)	9
PE 427 Meth and Mat in Phys Ed	2
Plus 40 credits in approved physical education	

(Continued on next page)

**PHYSICAL EDUCATION: WOMEN
(B.S.Ed.) (Cont.)**

courses, including representation of each of the areas of physical education, health, and recreation, and an approved 20-credit teaching minor selected from those listed under the secondary education curriculum.

PSYCHOLOGY (B.S.)

For this curriculum, see the College of Letters and Science section.

RECREATION (B.S.Ed.)

Recreation majors complete the general college requirements on the same basis as students who are preparing to teach at the secondary level, plus:

Course	Credits
Ed 314 Gen Sec Sch Meth	2
PE 427 Meth and Mat in Phys Ed	2
Courses in recreation and closely related areas	40
Supporting field	20

Courses taken to satisfy the above groups must be approved by the head of the Department of Health, Physical Education and Recreation.

Students in this curriculum need not complete the requirements for teacher certification.

SPECIAL EDUCATION (B.S.Ed.)

General requirements, plus:

Course	Credits
Ed 190 Special Ed Lab	6
Ed 375 Ed of Excep Children	3
Ed 467 Devel Reading Efficiency	3
Ed 477 Teaching Retarded Child	3
Ed 478 Teaching Ment Retarded	3
Ed 445 Student Teaching Seminar	0
Ed 480 Sp Ed St Teaching	9
IEd 404 Work Experience Prog	3
PE 467 Phys Ed for Handicapped	3
Psych 301 The Except Indiv	3
Psych 481 Mental Deficiency	3

Students may qualify for elementary or secondary teacher certification by completion of either of the options below:

A. ELEMENTARY OPTION:

Course	Credits
Ed 320 or 322 Primary or Intermediate Lang Arts Meth	3
Ed 326 Elem Sch Math Ed	3
Ed 421 Elem Sch Soc St Meth	2
Ed 444 Elem Sch Sc Meth	2

Plus 5 credits from:

Ed 275 Elem Sch Art Meth	2
Ed 381 Elem Sch Mus Meth (Prereq: Mus 120)	2
Ed 434 Children's Literature	3
PE 252 Elem Sch Phys Ed	2
PE 316 Elem Sch Health Meth	2

And 3 credits from non-methods courses in art and or music.

Students under this option take the general college requirements specified for those planning to teach at the elementary level.

B. SECONDARY OPTION:

Course	Credits
Ed 314 Gen Sec Sch Meth	2

Plus one 20-credit academic teaching minor from among those listed under the secondary education curriculum.

Students under this option take the general college requirements specified for those planning to teach at the secondary level.

TECHNICAL EDUCATION (B.S.Ed.)

General requirements for students preparing to teach at the secondary level, plus:

Course	Credits
Ed 314 Gen Sec Sch Methods	2
Ed 445 Student Teaching Seminar	0
Ed 431 Sec Sch St Teaching	9
IEd 130 Basic Electricity	4
IEd 131 Basic Electronics	4
IEd 140 Woodworking I	3
IEd 250 General Metals	3
IEd 310 Maint of Tool & Equip	3
IEd 451 Sch Shop Planning & Admin	3
IEd 462 I Ed Curriculum	3
IEd 465 Industrial Supervision	2
IEd 472 I Ed Methods	3
Engr 101 Engineering Graphics	2

Technical area of specialization (electricity-electronics, drafting, wood, or metals) 15-18

Students completing less than 60 credits in technical education and closely-related courses must complete one of the 20-credit teaching minors under the secondary education curriculum.

VOCATIONAL TEACHER EDUCATION (B.S.Ed.)

General requirements for students preparing to teach at the secondary level, plus:

Course	Credits
Ed 314 Gen Sec Sch Meth	2
Ed 445 Student Teaching Seminar	0
Ed 431 Sec Sch St Teaching	9
VocEd 270, 370, 470 Technical Competence I, II, III	30
VocEd 322 Voc Guidance	3
VocEd 351 Prin of Voc Ed	2
VocEd 420 Eval in Voc Ed	3
VocEd 450 Industrial Safety	3
VocEd 451 Sch Shop Pl & Admin	3
VocEd 461 Occup and Job Anal	3
VocEd 462 Voc Ed Curriculum	3
VocEd 472 Voc Ed Methods	3
VocEd 490 Dir St and or elect	8
VocEd 497 Coord Tech	3

Students completing less than 60 credits in vocational teacher education and closely-related courses must complete one of the 20-credit teaching minors under the secondary education curriculum.

COLLEGE OF ENGINEERING

H. Sidwell Smith (Dean), Dwight S. Hoffman (Associate Dean), George R. Russell (Assistant Dean and Secretary of the College Faculty).

Agricultural Engineering
Chemical Engineering

Mechanical Engineering

Civil Engineering
Electrical Engineering

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

The engineering profession is concerned with utilizing scientific principles to 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 are some of the activities in which engineers are engaged. Many engineers hold responsible management positions. Engineers are key members of the interdisciplinary teams which are needed to solve the complex technical, economic, and social problems of the modern 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 training is devoted to humanistic-social studies to help him relate his technical training to the world around him and to enhance his 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, including Idaho, 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 young men 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 in four years of high school 3 units of English, 4 units of mathematics, 3 units of natural science, including 1 unit of physics and 1 unit of chemistry, and 2 units of social science. A student may be admitted with less than the above, but the deficiency must be made up before he can progress very far in his college engineering course. Deficiencies can be made up readily by attending summer school and this is strongly recommended to avoid delay in progress due to lack of prerequisites. A statement of admission requirements is included in Part I 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.

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

A number of scholarships and awards is available to engineering students and prospective students. See the general information section of the catalog for description and information about applications.

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, B.S. (Ag.E.); Bachelor of Science in Chemical Engineering, B.S. (Ch.E.); Bachelor of Science in Civil Engineering, B.S. (C.E.); Bachelor of Science in Electrical Engineering, B.S. (E.E.); or Bachelor of Science in Mechanical Engineering, B.S. (M.E.).

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 inter-relationship among all practice fields in the execution of modern complex engineering work.

Courses of study leading to the graduate degree, Master of Science (M.S.), with majors in agricultural engineering, chemical engineering, civil engineering, electrical engineering, mechanical engineering, and nuclear engineering are offered. The Departments of Agricultural Engineering, Chemical Engineering, and Civil Engineering offer work leading to the Doctor of Philosophy (Ph.D.) degree. The requirements for graduate degrees are outlined in the Graduate School section of the catalog.

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 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 first semester of the freshman year; normally entry will be at the second semester of the freshman year or during the sophomore year. Students must achieve a 3.00 or better grade point average each term 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 department and their individual academic backgrounds are noted in other sections of the catalog. With few exceptions the faculty members hold advanced engineering degrees; almost 50% 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 classroom building and the J. E. Buchanan, J. Hugo Johnson, Henry F. Gauss and Kirtley 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 special 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 few institutional laboratories.

Work with the computer is required of all engineering students. The University's IBM 360 40 digital computer is used for classroom and research problems. Various types of analog 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 over 3,300 bachelors degrees in engineering. Its graduates are spread throughout the world. The fact that over 250 firms and agencies from throughout the country 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 does proceed to graduate work.

REQUIREMENTS FOR GRADUATION

Each of the five degree curricula requires a total of 136 semester credits.

Common Freshman Year For All Curricula Course	Credits	
	1st	2nd
Chem 111, 114 Principles of Chemistry and General Chemistry . . .	4	4
Math 180, 190 Analytical Geometry and Calculus I-II	4	4
Eng 101-102 English Composition	3	3
Engr 101 Engineering Graphics	2	-
Engr 131 Digital Programming	-	2
Engr 106 Survey of Engineering	2	-
Phys 210 Engineering Physics I	-	3
PE 131 Freshman Physical Education	½	½
	<hr/>	<hr/>
	15 ½	16 ½

The curriculum beyond the freshman year for each department is summarized below. Each curriculum includes various elective courses: there are humanistic-social electives, technical electives, mathematics electives, and free electives. These will be arranged in consultation with the student's adviser in accordance with the student's interest and consistent with current departmental

and college policies. The electives are intended to provide flexibility in the student's program. Free electives will usually be taken in a field of study other than the student's major. Courses such as Math 140-141, Phys 111, etc., which are taken to remove deficiencies, may not be used to fill minimum elective requirements.

AGRICULTURAL ENGINEERING (B.S.Ag.E.)

Common Freshman year, plus:

Sophomore Year Course	Credits	
	1st	2nd
Phys 211-212 Engr Phys II-III	3	3
ES 210, 220 Mechanics I-II	2	2
Math 200 Anal Geom & Calc III	3	-
Math 310 Ord Diff Equations	-	3
PE 233 Soph Phys Ed	½	½
Elective, Humanistic-Social	3	3
Elective, Composition	3	-
EE 200 Systems & Circuits	-	3
CE 111 Engr Measurements	2	-
AgE 242 Ag Engr Analysis	-	3
AgE 241 Intro to Ag Engr	1	-
	17 ½	17 ½

Junior Year Course	Credits	
	1st	2nd
AgE 351 Hydrology	2	-
AgE 352 Irrig & Drainage	-	3
AgE 362 Environ Systems	-	3
Soils 205 General Soils	3	-
ES 320 Fluid Mechanics	3	-
CE 360 Soil Mechanics	-	3
ES 340 Mechanics of Mat	3	-
ES 321 Thermodyn & Heat Trans	-	3
EE 314 Electron & Contr Sys	2	-
EE 323 Basic Elect Machinery	-	2
EE 315 Elect Lab (Electronics)	1	-
EE 324 Elect Lab (Machines)	-	1
Elective, Humanistic-Social	3	3
	17	18

Senior Year Course	Credits	
	1st	2nd
AgE 443 Ag E Instr Lab	2	-
AgE 452 Irrig & Dr Design	-	3
AgE 449 Elements Struc Engr	4	-
AgE 462 Mat Handling & Proc	-	2
AgE 471 Energy Conv Ag Sys	2	-
AgE 472 Ag Machine Design	-	3
AgE 491 Seminar	0	0
Econ 251 Prin of Economics	3	-
Elective, Mathematics	3	-
Elective, Humanistic-Social	3	3
Electives	-	6
	17	17

CHEMICAL ENGINEERING (B.S.Ch.E.)

Common freshman year, plus:

Sophomore Year Course	Credits	
	1st	2nd
Phys 211-212 Engr Phys II-III	3	3
ES 210, 220 Mechanics I-II	2	2

Math 200 Anal Geom & Calc III	3	-
Math 310 Ord Diff Equations	-	3
PE 233 Sophomore Phys Ed	½	½
Econ 251 Prin of Economics	3	-
Elective, Humanistic-Social	-	3
Elective, Composition	3	-
EE 200 Systems & Circuits	-	3
*ChE 221 Intro to Chem Engr	2	-
Chem 277 Organic Chemistry I	-	3
	16 ½	17 ½

Junior Year Course	Credits	
	1st	2nd
ChE 323 Mat & Energy Bal	2	-
ChE 330 Stagewise Operations	-	2
ChE 430 Transport Processes	-	3
ES 320 Fluid Mechanics	3	-
ES 321 Thermody & Heat Trans	3	-
Chem 305-306 Physical Chem	3	3
Chem 307-308 Phys Chem Lab	1	1
Chem 372 Organic Chem II	3	-
EE 314 Elect & Control Sys	-	2
EE 315 Elect Lab (Electronics)	-	1
Elective, Mathematics	-	3
Elective, Humanistic-Social	3	2
	18	17

Senior Year Course	Credits	
	1st	2nd
ChE 423 Reactor Kinet & Des	3	-
Elective, Engr Science	3	-
ChE 444 Auto Process Cont	-	3
ChE 453-454 Chem Pr A & D I-II	3	3
ChE 441-442 Ch Engr Lab I-II	2	2
ChE 431 Rate Processes	2	-
ChE 491 Seminar	0	0
Elective, Humanistic-Social	5	4
Elective	-	5
	18	17

*This course may be scheduled in the junior year for transfer students who should elect a humanistic-social course in the sophomore year.

CIVIL ENGINEERING (B.S.C.E.)

Common freshman year, plus:

Sophomore Year Course	Credits	
	1st	2nd
Phys 211-212 Engr Phys II-III	3	3
ES 210, 220 Mechanics I-II	2	2
Math 200 Anal Geom & Calc III	3	-
Math 310 Ord Diff Equations	-	3
PE 233 Soph Phys Ed	½	½
Econ 251 Prin of Economics	3	-
Elective, Humanistic-Social	-	3
Elective, Composition	-	3
EE 200 Systems & Circuits	-	3
CE 111 Engr Measurements	2	-
Geol 109 Physical Geology	4	-
	17 ½	17 ½

Junior Year Course	Credits	
	1st	2nd
CE 357 Engr Mat Science	3	-
CE 341 Mech of Materials II	-	2
CE 311 Surveying	3	-
CE 360 Soil Mechanics	-	3
ES 321 Thermo & Heat Transf	3	-
CE 342 Theory of Structures	-	4
ES 320 Fluid Mechanics	3	-
CE 322 Hydraulics	-	3
ES 340 Mech of Materials	3	-
CE 370 Transp Engr I	-	2
Elective, Humanistic-Social	3	3
	18	17

Senior Year Course	Credits	
	1st	2nd
AgE 351 Hydrology	2	-
CE 382 Engr Economy	-	2
CE 441 Reinf Concrete Design	3	-
EE 323 Basic Elec, or EE 314 Electr & Contr Syst	-	2
CE 431 Sanitary Engineering	4	-
CE 471 Transport Engr II	3	-
Elective, Humanistic-Social	3	3
Elective, Technical*	2	7
Elective, Mathematics	-	3
CE 491 Seminar	0	0
	17	17

*At least 6 of the 9 credits of technical electives must be selected from approved courses in civil engineering.

ELECTRICAL ENGINEERING (B.S.E.E.)

Common freshman year, plus:

Sophomore Year Course	Credits	
	1st	2nd
Phys 211-212 Engr Phys II-III	3	3
ES 210, 220 Mechanics I-II	2	2
Math 200 Anal Geom & Calc III	3	-
Math 310 Ord Diff Equations	-	3
PE 233 Sophomore Phys Ed	1/2	1/2
Elective, Humanistic-Social	3	3
Elective, Composition	3	-
EE 200 Systems & Circuits	3	-
EE 201 Network Analysis	-	4
Math 184 Elem of Linear Alg	-	2
	17 1/2	17 1/2

Junior Year Course	Credits	
	1st	2nd
EE 300 Trans in Linear Sys	4	-
EE 330 Electromag Theory	-	5
EE 310 Electronics I	5	-
EE 311 Electr II, or EE 321 Energy Conversion II	-	3
EE 320 Energy Conversion I	5	-
EE 440 Digital Systems Engr	-	3
Elective, Humanistic Social	3	3
Elective, Technical*	-	3
EE 391 Seminar	0	0
	17	17

Senior Year Course	Credits	
	1st	2nd
EE 480-481 Prin of Design	3	3
EE 470 Control Systems	5	-
Elective, Technical*	3	9
Elective, Humanistic-Social	3	3
Elective	3	3
EE 491 Seminar	0	0
	17	18

*Technical electives will normally be taken from electrical engineering courses, from upper-division courses in other engineering departments, or from upper-division courses in mathematics or physics. Two courses must be taken in the engineering science offerings. EE 450 and CE 401 are strongly recommended for the student planning to do graduate work.

MECHANICAL ENGINEERING (B.S.M.E.)

Common freshman year, plus:

Sophomore Year Course	Credits	
	1st	2nd
Phys 211-212 Engr Phys II-III	3	3
ES 210, 220 Mechanics I-II	2	2
Math 200 Anal Geom & Calc III	3	-
PE 233 Sophomore Phys Ed	1/2	1/2
Econ 251 Prin of Economics	-	3
Elective, Humanistic Social	3	3
Elective, Composition	3	-
EE 200 Systems & Circuits	-	3
ME 2b3, 254 Mat Proc Lab I-II	1	1
Met 201 Elem Materials Sc	2	-
ME 261 Engr Materials	-	2
	17 1/2	17 1/2

Junior Year Course	Credits	
	1st	2nd
EE 323 Basic Elect Mach	2	-
CE 382 Engr Economy	-	2
EE 324 Elec Lab (Machines)	1	-
EE 314 Electron & Contr Sys	-	2
ES 321 Thermo & Heat Transf	3	-
EE 315 Elec Lab (Electr)	-	1
ES 340 Mechanics of Mat	3	-
ES 320 Fluid Mechanics	-	3
Elective, Mathematics	2	-
ME 322 Applied Thermo	-	4
ME 323-324 Mechan Design	3	2
Elective, Humanistic-Social	3	3
	17	17

Senior Year Course	Credits	
	1st	2nd
ME 423 Dynam of Fluids	3	-
ME 425, 426 Mech Design	3	2
ME 432 Energy Conv Systems	-	3
ME 437, 438 Exper Tech & Proj Lab	3	2
ME 445 Heat Transfer	3	-
ME 472 Mech Vibrations	-	3
ME 491 Seminar	0	0
Elective, Technical	3	4
Elective, Humanistic Social	3	3
	18	17

COLLEGE OF FORESTRY, WILDLIFE AND RANGE SCIENCES

Ernest Wohletz (Dean), Robert H. Seale (Associate Dean).

Forest Management	Wood Utilization Technology
Resource Management	Forest Products
Business Management	Wood Science — Engineering
Range Management	Wildlife Management
	Fishery Management

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 management (1917), game management (1942) and fishery management (1951). 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 purpose of the College is to train students as competent individuals and professionals. The goal is to offer an educational program which will give the student a well-rounded college education, both scientific and cultural. These studies will prepare the individual for his responsibility in society and give him the educational background for a happier, more abundant, and productive life. The specific objective, however, is to superimpose on this general background a course of study of a professional nature. The training obtained qualifies the student for the technical, administrative, and research requirements necessary for the management and use of the resources of forest and range lands.

ADVANTAGES OF LOCATION

The University of Idaho is ideally located for the training of students in the several professional fields described below. The State of Idaho is comprised largely of forest and range lands and a variety of vegetational types is close at hand for student study. Virgin and cut-over forested areas range 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 cover extensive areas within the State. These grazing lands 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 game birds, fish and furbearers.

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 for directed effort of the student in preparing himself for his chosen profession.

In addition, the preparation of timber products for consumption constitutes the second most important industry in Idaho. Large sawmills, pulp plants, logging camps and numerous woodworking plants are located throughout the area. These

operations provide study facilities in 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 near-by ranches.

FACILITIES

Facilities for training include the natural laboratories described above as well as the campus at the University of Idaho. The Forestry Building, a four-story brick structure, houses the College on the campus. Within this building are brought together the teachers, the classrooms, laboratories, technical equipment, and plant and animal collections necessary for the highest quality instruction. Supporting courses for forestry students are offered in modern, well-equipped classrooms and laboratories of seven other colleges of the University.

Two 20-acre forest nurseries are managed by the College for the production of planting stock, which is sold to the people of the State for erosion control, wildlife food and cover, windbreaks, farm woodlots and to timber landowners. The nurseries are also used for student training purposes. A tract of over 7,000 acres of forest land located 25 miles from the campus is used as an experimental and demonstration forest. An arboretum, comprising more than 100 species of trees, is maintained on the University campus for studies in dendrology and silviculture. Under lease from the State Land Board, a permanent Summer Camp site is maintained by the College on the shores of Payette Lake. These facilities not only provide the best for instructional purposes but also provide for work opportunities whereby experience can be gained and money earned while going to school.

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 the training of foresters, the Society in cooperation with the various regional accreditation associations periodically rates the forestry schools of the United States. After careful examination, taking into consideration the adequacy of instruction, personnel, financial support, equipment, success of alumni and many other factors, each school is given a rating of "accredited" or "not accredited." Forestry education at the University of Idaho has always received accredited status. This accreditation assures to the student high quality education in any division of the University and guarantees an unexcelled professional training at both the undergraduate and graduate level in this College.

ADMISSION REQUIREMENTS

For a statement of admission requirements, see Part I 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 the curriculum for the freshman and sophomore years as set forth in the pages immediately following. A student whose program does not closely approximate this one will find it impossible to earn his degree 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 options which require it, is not completed at the end of the sophomore year. Students planning to elect one of these options, who have been unable to transfer earlier, may report directly to Summer Camp for their initial registration in the University. 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 program is designed to assure a fundamental and professional education. During the first two years, all students in the College take essentially the same arrangement of courses. 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 an option concerned with the field of resource management in which he is particularly interested. The options are forest management, in which the student may further emphasize either the resource management or the business management phase, wood utilization technology, within which a further choice may be made between the wood science-engineering and the forest products phases, range management, wildlife management, and fishery management.

The course of study in each of the options is so arranged as to provide for a high degree of commonness among them, in both content and orientation, as well as a measure of concentration in the subject matter peculiar to their respective professional requirements. Flexibility and individuality of programs is provided not only by the choice among the options 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 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 curriculum into the various options. The field of resource management corresponding to each of the options has attained professional status, that of forestry being the oldest and most mature among them. Others, like wildlife and fishery management, though younger, are growing rapidly and attracting considerable attention.

The forester is primarily interested in the resource or business management aspects of tree growing. The range manager deals with forage production for domestic livestock and for big game on forested and non-forested ranges. Wildlife and fishery managers deal with game or fish resources, or both, either as biologists or as administrators. All the above are responsible for land management and most often in the multiple-use sense. A wood utilization technologist, however, is concerned with the biological, physical and chemical properties of wood materials or with the harvesting, manufacture and use of wood products.

In practice, men from several professional groups often work as teams in assuring maximum and continuous production of all the crops or benefits which flow from forest and range land areas.

Job opportunities following training in these educational programs vary depending upon the option or field of concentration. A complete discussion of employment possibilities is contained in a publication that can be obtained by writing to the dean of the College of Forestry, Wildlife and Range Sciences.

REQUIREMENTS FOR GRADUATION

University Requirements

See regulation J in Part I for general University requirements for degrees.

College Requirements

A total of 141 semester credits is required for the degree of Bachelor of Science

in Forestry. Specific course requirements are set forth below in the form of schedules by year, semester and option. It is intended that courses be taken in the sequence shown.

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 effect a combination of established options, 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.

Lower Division Requirements Common to All Options

(See specific options for additional lower division requirements)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Biol 201 Intro to the Life Sci	4	Biol 203 General Botany	4
Chem 111 Prin of Chemistry	4	Eng 102 English Composition	3
Eng 101 English Composition	3	Math 180 Anal Geom & Calc I	4
For 101 Forestry Orientation	1	PE 131 Freshman Phys Ed	½
PE 131 Freshman Phys Ed	5	Electives	4

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Biol 202 General Zoology	4	Biol 331 General Ecology	3
Econ 251 Prin of Economics	3	Econ 252 Prin of Economics	3
PE 133 Sophomore Phys Ed	½	For 250 Intro to Wildland Mgt	2
Sp 131 Fund of Speech	2	PE 133 Sophomore Phys Ed	½

Summer Camp or Summer Employment Requirements

Students who elect the forest management or range management options are required to complete the eight-credit course program offered at Forestry Summer Camp. They are expected to complete this requirement before commencing the technical-professional course work of their upper division programs.

Students who elect the wood utilization technology, wildlife management or fishery management options 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 or they may elect to take the Summer Camp courses.

FOREST MANAGEMENT OPTION Resource Management Phase

Freshman-2nd Semester	Credits
Chem 275 Carbon Compounds	3
Sophomore-1st Semester	
Earth science or add'l calculus	4
Phys 113 General Physics	3
Sophomore-2nd Semester	
Bot 241 Systematic Botany	3
Phys 114 General Physics	3
Summer Camp	
For 300 Forest Resource Measurements	4
For 301 Wildland Ecology	4
Junior-1st Semester	
For 307 Biometry	3
For 321 Silvics	2

	Credits
For 317 Elem of Fishery Mgt	
or	
For 341 Elem of Wildlife Mgt	2
For 351 Elem of Range Mgt	2
Soils 205 General Soils	3
Electives	4
Junior-2nd Semester	
Eng 317 Tech & Engr Rept Writg	3
For 320 Dendrology	3
For 424 Silviculture	3
For 474 Mensuration	3
For 482 Econ of For Enterprise	2
Electives	3
Senior-1st Semester	
For 331 Wood Technology	3
For 469 Forest Entomology	3
For 475 Forest Finance	2
For 483 Econ of Conservation	2
Electives	6

(Continued on next page)

FOREST MANAGEMENT OPTION Resource Management Phase (cont.)

Senior-2nd Semester	Credits
For 464 Forest Pathology	3
For 476 Forest Regulation	3
For 484 Forest Policy & Admin	3
For 494 Models for Resource Decisions	2
Electives	6

FOREST MANAGEMENT OPTION Business Management Phase

Freshman-2nd Semester	Credits
Chem 275 Carbon Compounds	3

Sophomore-1st Semester	Credits
Earth Science or add'l calculus	4
Phys 113 General Physics	3

Sophomore-2nd Semester	Credits
Bot 241 Systematic Botany	3
Phys 114 General Physics	3

Summer Camp	Credits
For 300 Forest Resource Measurements	4
For 301 Wildland Ecology	4

Junior-1st Semester	Credits
Bus 365 Business Law	3
Eng 313 Business Writing	3
or	
Eng 317 Tech & Engr Rept Wrtg	3
For 307 Biometry	3
For 321 Silvics	2
Two of the following three:	
For 317 Elem of Fishery Mgt	3
For 341 Elem of Wildlife Mgt	3
For 351 Elem of Range Mgt	4

Junior-2nd Semester	Credits
Bus 311 Intro to Mgt Theory	3
For 424 Silviculture	3
For 474 Mensuration	3
For 482 Econ of For Enterprise	2
Electives	6

Senior-1st Semester	Credits
Actg 131 Prin of Accounting	3
For 331 Wood Technology	3
Forest Protection	2
For 475 Forest Finance	2
For 483 Econ of Conservation	2
Electives	5

Senior-2nd Semester	Credits
Actg 132 Prin of Accounting	3
For 476 Forest Regulation	3
For 484 Forest Policy & Admin	3
For 494 Models for Resource Decisions	2
Electives	6

WOOD UTILIZATION TECHNOLOGY OPTION Forest Products Phase

Freshman-2nd Semester	Credits
Chem 275 Carbon Compounds	3

Sophomore-1st Semester	Credits
Earth science or add'l calculus	4
Phys 113 General Physics	3

Sophomore-2nd Semester	Credits
Phys 114 General Physics	3
Electives	5

Junior-1st Semester	Credits
Bus 311 Intro to Mgt Theory	3
Computer elective	2
For 307 Biometry	3
For 331 Wood Technology	3
Electives	7

Junior-2nd Semester	Credits
CE 112 Elementary Surveying	2
For 434 Logging and Wood Industries	3
For 436 Biol Properties of Wood	3
For 464 Forest Pathology	3
For 482 Econ of For Enterprise	2
Electives	5

Senior-1st Semester	Credits
Eng 317 Tech & Engr Rept Wrtg	3
For 321 Silvics	2
For 437 Phys Properties of Wood	3
For 483 Econ of Conservation	2
Electives	8

Senior-2nd Semester	Credits
For 370 Prin of Forest Mgt	2
For 438 Chem Properties of Wood	3
For 474 Mensuration	3
For 494 Models for Resource Decisions	2
Electives	8

WOOD UTILIZATION TECHNOLOGY OPTION Wood Science — Engineering Phase

Freshman-2nd Semester	Credits
Chem 277 Organic Chemistry I	3

Sophomore-1st Semester	Credits
Math 190 Anal Geom & Calc II	4
Phys 210 Engineering Physics I	3

Sophomore-2nd Semester	Credits
Phys 211 Engineering Physics II	3
Electives	5

Junior-1st Semester	Credits
E S 210 Mechanics-Statics	2
For 307 Biometry	3
For 331 Wood Technology	3
Phys 212 Engineering Physics III	3
Electives	7

Junior-2nd Semester	Credits
E S 340 Mechanics of Materials	3
For 434 Logging and Wood Industries	3
For 436 Biol Properties of Wood	3
For 464 Forest Pathology	3
For 482 Econ of For Enterprise	2
Electives	4

Senior-1st Semester	Credits
Chem 114 General Chemistry	4
Computer elective	2
Eng 317 Tech & Engr Rept Wrtg	3
For 321 Silvics	2
For 437 Phys Properties of Wood	3
Electives	4

Senior-2nd Semester	Credits
Chem 372 Organic Chemistry II	3

(Continued on next page)

WOOD UTILIZATION TECHNOLOGY OPTION

Wood Science — Engineering Phase (Cont.)

	Credits
For 370 Prin of Forest Mgt	2
For 434 Chem Properties of Wood	3
For 474 Mensuration	3
For 494 Models for Resource Decisions	2
Electives	5

RANGE MANAGEMENT OPTION

Freshman-2nd Semester	Credits
Chem 275 Carbon Compounds	3

Sophomore-1st Semester	
Earth science or add'l calculus	4
Phys 113 General Physics	3

Sophomore-2nd Semester	
Bot 241 Systematic Botany	3
Phys 114 General Physics	3

Summer Camp	
For 300 Forest Resource Measurements	4
For 301 Wildland Ecology	4

Junior-1st Semester	
An I 305 Prin of Nutrition	3
For 307 Biometry	3
For 341 Elem of Wildlife Mgt	2
For 351 Elem of Range Mgt	2
Soils 205 General Soils	3
Electives	3

Junior-2nd Semester	
An I 321 Beef Cattle Science	
or	
An I 322 Sheep Science	3
Eng 317 Tech & Engr Rept Wrtg	3
For 370 Prin of Forest Mgt	2
For 452 Range Communities	4
Electives	5

Senior-1st Semester	
Bot 311 Plant Physiology	3
Bot 432 Plant Ecology	3
For 453 Range Methods & Techniques	3
For 483 Econ of Conservation	2
Electives	6

Senior-2nd Semester	
For 454 Range Improvements & Mgt Planning	3
For 494 Models for Resource Decisions	2
Soils 454 Soil Development and Classification	3
Electives	8

WILDLIFE MANAGEMENT OPTION

Freshmen-2nd Semester	Credits
Chem 275 Carbon Compounds	3

Sophomore-1st Semester	
Earth science or add'l calculus	4
Phys 113 General Physics	3

Sophomore-2nd Semester	
Phys 114 General Physics	3
Electives	5

Junior-1st Semester	
Eng 317 Tech & Engr Rept Wrtg	3

	Credits
For 307 Biometry	3
For 317 Elem of Fishery Mgt	2
For 341 Elem of Wildlife Mgt	2
For 351 Elem of Range Mgt	2
Electives	6

Junior-2nd Semester	
Computer elective	2
For 370 Prin of Forest Mgt	2
For 442 Wildlife Mgt	3
Soils 205 General Soils	3
Electives	8

Senior-1st Semester	
An I 305 Prin of Nutrition	
or	
An I 306 Appld Animal Nutrition	3
For 443 Wildlife Mgt Techniques	2
For 483 Econ of Conservation	2
For 493 Legal Aspects of Land Management	2
For 497 Land Mgt Seminar	1
Zool 483 Mammalogy	3
Electives	5

Senior-2nd Semester	
Communications elective	2
For 444 Big Game Mgt	3
For 446 Big Game Mgt Trip	1
For 484 Forest Policy & Administration	3
For 494 Models for Resource Decisions	2
Zool 482 Ornithology	3
Electives	4

FISHERY MANAGEMENT OPTION

Freshman-2nd Semester	Credits
Chem 275 Carbon Compounds	3

Sophomore-1st Semester	
Earth science or add'l calculus	4
Phys 113 General Physics	3

Sophomore-2nd Semester	
Phys 114 General Physics	3
Electives	5

Junior-1st Semester	
For 307 Biometry	3
For 317 Elem of Fishery Mgt	2
For 341 Elem of Wildlife Mgt	2
Zool 484 Invertebrate Zoology	5
Electives	6

Junior-2nd Semester	
Eng 317 Tech & Engr Rept Wrtg	3
For 370 Prin of Forest Mgt	2
For 416 Limnology	3
Genetics	3
Electives	7

Senior-1st Semester	
For 351 Elem of Range Mgt	2
For 411 Ichthyology	3
For 483 Econ of Conservation	2
Zool 315 General Physiology	4
Electives	7

Senior-2nd Semester	
Ent 372 Aquatic Entomology	3
For 418 Fishery Mgt Techniques	3
For 484 Forest Policy & Administration	3
For 494 Models for Resource Decisions	2
Electives	7

GRADUATE PROGRAM

Programs of study leading to advanced degrees are offered in each of the fields represented by the undergraduate options available in the College. The graduate degrees offered are Master of Science (M.S.), Master of Forestry (M.F.), and Doctor of Philosophy (Ph.D.)

Masters Degrees

The M.S. degree requires research and the submission of a thesis. Normally the student is expected to have completed undergraduate training essentially equivalent to that of one of the undergraduate options. In some cases, a student with a physical, biological or social science undergraduate major basic to one of the land management fields may qualify for the M.S. program.

The M.F. degree is a professional degree normally limited to those with professional experience and undergraduate training in forest management. The purpose of this training is to increase professional competence rather than provide specialized training in research.

Doctor of Philosophy

This degree requires research and a dissertation. As in the case of the masters degrees the student's prior training may be either in one of the resource management fields or in one of the biological, physical or social sciences basic thereto.

ADMISSIONS AND DEGREE REQUIREMENTS

The typical student taking his graduate work in this College will have completed course work essentially equivalent to that required for a bachelors degree in one of the undergraduate options. However, a student with a distinctly different undergraduate training may also be admitted. The design of graduate study plans for these two classes of students will be such as to allow for the differences in preparation and, in large measure, to provide them with comparable backgrounds by the time the program is completed. For doctoral students, an important feature will be the attainment of an understanding of the principles of resource management in the areas other than that which the student chooses for specialization.

General University requirements set a minimum of one year's resident study, beyond the bachelors degree, for the masters degree, and three years for the doctors; these include minimum residence at the University of Idaho of one and two years, respectively. However, time normally taken to complete all requirements will exceed these minima according to (a) deficiencies in preparation, (b) amount of field work usually involved in the research problems, and (c) course load — specifically, holders of assistantships which require them to render part-time service will take more time to earn the degree than a student carrying a full course load each term.

See the Graduate School section of the catalog for procedural details as to admission, requirements for the masters degree, and procedures and requirements for the Ph.D. common to all departments.

FACILITIES FOR GRADUATE STUDY

Excellent opportunities for study and research are available in all subject matter fields in which the College offers graduate work. With approximately 90 percent of its area in forest and range land, together with a wealth of water resources, much of it close at hand, the State of Idaho offers unlimited possibilities for training and research in the areas of knowledge for which the College is responsible.

The College has its own research organization, the Forest, Wildlife and Range Experiment Station including the Idaho Cooperative Wildlife Research Unit and

the Idaho Cooperative Fishery Unit. All faculty members of the College are also on the Experiment Station staff and are engaged in research as well as teaching. At the present time, there are numerous research projects under way in all areas of responsibility. A major advantage accruing from this research agency is the opportunity to divide current research projects into facets, any one of which might constitute a suitable graduate project. In this way, the student will be able to do independent research within the outlines of a more comprehensive project, with the resulting advantage of having much necessary supporting information already available. An organization of this type affords an ideal teaching and research environment.

Facilities available include well-equipped laboratories on the campus. Separate laboratories in wood utilization, pathology, entomology, soils, range management, wildlife management and fishery management are available. Special herbaria or specimen collections for dendrology, wood technology, pathology, range plants, wildlife and fish are maintained.

The University has a 3-acre arboretum, two 20-acre forest tree nurseries, a 58-acre summer camp location, a 7000-acre experimental forest, which includes an 800-acre deer enclosure, and a 65-acre headquarters site for ecological and management research in the Idaho wilderness area. Cooperative arrangements with public and private agencies make available, either on or near the campus, several other excellent facilities. These include a Forestry Sciences Laboratory established by the U.S. Forest Service, located on the campus and operated in cooperation with the University. Other facilities in the State include three experimental forests and two experimental ranges operated by the U.S. Forest Service and a 1000-acre controlled grazing area maintained in cooperation with the U.S. Bureau of Land Management. A field station for fishery research is operated in cooperation with the U.S. Bureau of Sport Fisheries and Wildlife. Opportunities for research in wood utilization include a great variety of tree species and sites coupled with several of the nation's largest wood processing industries. In addition to these specific facilities, an outdoor laboratory is available which includes millions of acres of forest and range land and countless lakes and streams set in a highly varied landscape.

GRADUATE ASSISTANTSHIPS AND FELLOWSHIPS

A number of teaching and research assistantships, research fellowships and National Defense Fellowships is granted to assist highly qualified students in their graduate programs. Grants available in the College include several Experiment Station assistantships, others supported by the Wildlife and Fishery Units, two federally-financed assistantships in range management, a number made available through the Short Term Applied Research program of the University, and the Potlatch Fellowship for studies in wood utilization. Several grants have become available through the McIntire-Stennis program in addition to a number provided by various land management agencies through the University. A list of assistantships and fellowships available for any particular year, with details of the stipends and other privileges offered, is contained in the annual fellowship announcements of the University, or may be obtained by writing the dean of the College of Forestry, Wildlife and Range Sciences.

COLLEGE OF LAW

Albert R. Menard, Jr. (Dean). Douglas Grant (Secretary of the College Faculty).

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 admission into the legal profession. Our faculty prepares students for the practice of law anywhere in the United States. Whether as advocate, counselor, judge or law teacher, and in the course of this instruction stresses the responsibilities assumed by the professional man. The study of law also serves as a valuable asset to the young man or woman who desires to pursue a career in government, politics or business.

Methods of instruction are adapted to development in each student of his 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. 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 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, pre-legal 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.

PRE-LEGAL WORK

The subject matter of pre-legal education is in general less important than the quality of work done and the caliber of the professors under whom the work is taken. The student preparing to enter law school should avoid easy courses and take those which will develop his thinking powers. Intensive work will enable him to acquire the intellectual discipline and experience necessary for success in law school. The student should aspire to a critical appreciation of values and political, economic and social institutions; he should stress understanding, not just knowledge, in his studies. We also point to the fact that words are the tools of the lawyer and strenuous effort, in course selection and in activities outside the classroom, should be devoted to development of the ability to communicate orally and in writing.

While study of accounting is not a prerequisite for admission to the College of Law, it is highly recommended that pre-law 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.

Pre-law 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 to the College of Law must have 96 semester credits or more of acceptable college work in residence at an accredited college or university with at least an average grade of "C+" on all work attempted. "*Acceptable college work*" does not include credits in hygiene, domestic arts, physical education, vocal or instrumental music, typing, shorthand, practice teaching, teaching methods and techniques, non-theory courses in military science and similar courses *except that* required courses in such work are acceptable up to 10 per cent of the total credits offered for admission. The grade average requirement must be obtained on credits other than those offered in these subjects. *In residence* does not include work done by correspondence without direct and continuing contact with the instructor.

Effective with classes entering in the fall semester, 1970, and thereafter, applicants for admission must have a bachelors degree from an accredited four year college or university. Exceptions will be made and admission extended only to selected students who demonstrate unusual capacity for legal study on the basis of their college record and LSAT score *and* who are enrolled in "combined degree programs" which will award the student a bachelors degree upon the successful completion of the first year of law study and which meets the standards outlined above for admission with 96 hours of credit. Such programs are found in the College of Letters and Science and the College of Business and Economics at the University of Idaho. Interested students should consult the appropriate material for these colleges elsewhere in this bulletin. Combined programs also exist at present at the College of Idaho and Northwest Nazarene College. Certain other institutions may also agree to grant the necessary bachelors degree after one year of law study. Students not at the University of Idaho should consult appropriate individuals if a bachelors degree from their institution may be earned in this manner and to be sure that they will meet all needed requirements before entering the College of Law.

The Law School Admission Test is required of all students. This test is given by the Educational Testing Service at a large number of places throughout the United States in November, February, April, and August. There is a fee of \$13.00 which the applicant must pay. 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.

PROCEDURE FOR ADMISSION

Applicants who have taken their pre-legal work at the University of Idaho must fill out and file with the dean of the College of Law a personnel form. Students in the combined curricula must file such personnel forms and secure admission to the College of Law prior to taking any law course. Personnel forms should be filed at least four months before the beginning of the semester in which the applicant plans to take law work. This form may be obtained from the dean of the College of Law. Applicants must also take the Law School Admission Test and have the Educational Testing Service forward a score report to the College of Law.

All other applicants must (1) fill out and file with the Admissions Office of the University of Idaho an application blank for admission to the University of Idaho, (2) have the principal of the high school from which they graduated send their high school transcript direct to the Admissions Office of the University of Idaho if they will not have a degree from a 4-year college at the time of entry into the College of Law, (3) have each university or college attended send two copies of their transcript directly to the Admissions Office of the University of Idaho, (4) fill out and file with the dean of the College of Law a personnel form and (5) take the Law School Admission Test and have the Educational Testing Service forward the score report to the College of Law.

If the applicant is accepted, he will receive a permit to register 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.

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. The number of credits to be transferred from such previous institution is determined by the dean of the College of Law in each individual case. The last 26 semester credits of law must be completed in residence at the University of Idaho.

SPECIAL STUDENTS

In rare instances persons who cannot qualify as candidates for the degree of Bachelor of Laws may be admitted as special students on petition to the Committee of Admissions of the College of Law. The applicant must show that he is unable to pursue such studies as will qualify him for admission as a regular student, and that he possesses such educational training and practical experience as will enable him to pursue selected law courses satisfactorily. Application for permission to enter as a special student should be made in advance of the regular registration period. It must be distinctly understood that such special students are not candidates for a degree in law and will not be qualified to take bar examinations as a result of studies while a special student.

COMBINED DEGREE PROGRAMS

Joint programs exist with the College of Letters and Science and the College of Business and Economics which permit a student to secure the degree of Bachelor of Arts or Bachelor of Science in Business and the degree of Juris Doctor in a total of six years under certain circumstances. The student registers for his first three years in the College of Letters and Science or the College of Business and Economics and completes at least 98 semester hours work as prescribed by those colleges. During this three years, he can take no law courses. In the spring semester of the third year, he must apply for admission to the College of Law. Only those students whose college grade record and Law School Admission Test score indicate they are unusually well qualified for law study will be accepted with only three years of undergraduate work. If admitted to the College of Law, the fourth year of study consists of the required first year courses of the College of Law curriculum. If all first year law courses are satisfactorily completed the student receives the appropriate bachelors degree at the end of his fourth year. After two more years of law study, the student receives the degree of Juris Doctor.

FEES AND EXPENSES

Fees and expenses in the College of Law are the same as those established

for other divisions of the University. However, law students must expect that the cost of books for law study will be substantially higher.

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 which he has undertaken in his first two semesters of enrollment in the College of Law, he 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 his 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, he 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 faculty upon petition.

REQUIREMENTS FOR GRADUATION

The degree of Bachelor of Laws (LL.B.) will be awarded to students who do not have a bachelor's degree but who have obtained 84 semester credits offered by the College of Law with an average grade of 2.00 (C) upon all work taken. Six semesters must be devoted to the full-time study of law.

The degree of Juris Doctor (J.D.) will be awarded to students who, at the time the preceding College of Law requirements are completed, have a bachelor's degree from an accredited college.

The last 26 semester credits of law must be completed in residence at the University of Idaho. 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 14 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.

FIRST YEAR

Law Courses (required)	Credits		First Semester Law Courses	Credits
	1st	2nd		
501-502 Contracts I-II	2	2	530 Constitutional Law	3
503-504 Legal Writing I-II	1	2	531 Administrative Law	3
505-506 Procedure I-II	3	3	532 Creditor's and Debtor's Rights	3
507-508 Property I-II	3	3	533 Commercial Paper	2
509-510 Torts I-II	3	2	534 Natural Resources	3
511 Fundamentals of Public Law	3	-	535 Business Associations	4
512 Criminal Law	-	3	536 Taxation I	3
			538 Labor Law	2
				13-15

SECOND YEAR

13 to 15 hours each semester chosen from the following:

Second Semester Law Courses

539 Family Law and Community Property	3
540 Evidence	4

(Continued on next page)

Second Semester Law Courses (Cont.)

541 Remedies and Restitution	3
542 Wills, Estates and Trusts	3
543 Federal Jurisdiction	3
544 Sales and Products Liability	3
560 Problems in Natural Resources*	2
	13-15

THIRD YEAR

13 to 15 hours each semester chosen from the following courses not previously taken:

First Semester Law Courses

530 Constitutional Law	3
531 Administrative Law	3
545 Security	3
546 Municipal Corporations	2
532 Creditor's and Debtor's Rights	3
534 Natural Resources	3
547 Estate Planning	4
538 Labor Law	2

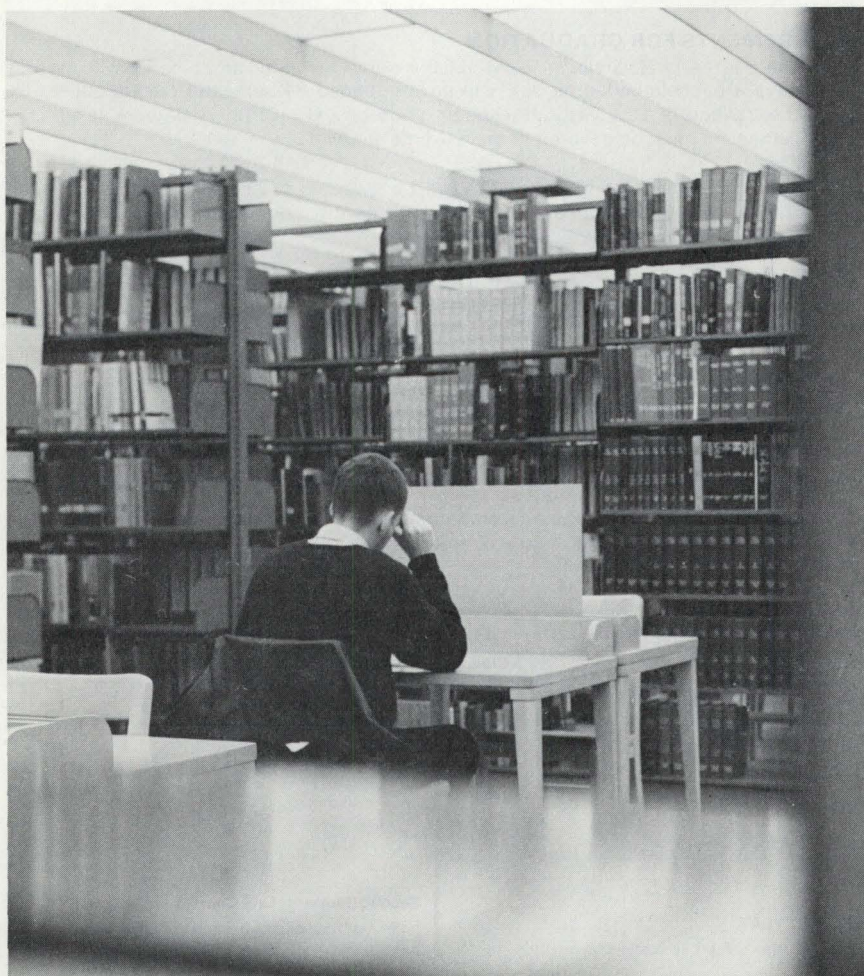
Credits

548 Practice Court I	1
570 Legal Research	1-2
And any second-year course not previously taken.	13-15

Second Semester Law Courses

539 Family Law and Community Property	3
550 Government Regulation of Business	3
541 Remedies and Restitution	3
551 Legal Practice	1
543 Federal Jurisdiction	3
560 Problems in Natural Resources*	2
552 Conflict of Laws	3
537 Taxation II	2
549 Practice Court II	1
570 Legal Research	1-2
553 Legislation	2
And any second-year courses not previously taken.	13-15

*Open only to students who have previously taken Law 534, Natural Resources.



COLLEGE OF LETTERS AND SCIENCE

Boyd A. Martin (Dean), Elmer K. Raunio (Associate Dean), John L. McMullen (Assistant to the Dean), Earl J. Larrison (Secretary of the College Faculty).

Art and Architecture

Architecture (B.Arch.)
Interior Design (B.F.A.)
Landscape Architecture (B.L.Arch.)

Art (B.A. or B.F.A.)
Art Education
Design
Painting
Sculpture

Bacteriology ¹

Bacteriology (B.S.) ¹
Medical Technology Option (B.S.) ¹

Biological Sciences

Biology (B.S.)
Botany (B.S.)
Pre-Physical Therapy (B.S.)
Zoology (B.S.)

Chemistry

Chemistry (B.S.)
Technical Literature (B.S.)
Pre-Dental Studies (Two-Year Program and B.S. Pre-Dent.)
Pre-Medical Studies (B.S. Pre-Med.)

Communications

Communications
Journalism (B.A.)
Advertising
News-Editorial
Radio-Television News
Photography
Radio-Television (B.A.)

Drama-Speech

Drama (B.A.)
Acting-Directing
Technical Theatre
Speech (B.A.)

Economics (B.A.) ²

English (B.A.)

Foreign Languages

Classical Studies (B.A.)
French (B.A.)
German (B.A.)
Greek
Italian
Latin (B.A.)
Russian
Spanish (B.A.)

Geography (B.A.) ³

History

History (B.A.)
Museology

Home Economics (B.S.H.Ec.)

Child Development
Clothing, Textiles & Design
Clothing
Interiors
Education
Teaching
Extension
Food and Nutrition
Dietetics and Institutional Management
Research
Home Economics
General
Business
Journalism
Pre-Nursing Studies (One Year Plus Summer, and Two-Year Programs)

Mathematics (B.S.)

Music

Composition (B.Mus.)
Education (B.Mus.)
Literature (B.A.)
Performance (B.A. or B.Mus.)

Philosophy (B.A.)

Physics (B.S. or B.Phys.)

(Continued on next page)

(Continued from previous page)

Political Science

Law (Combined B.A. and J.D.)⁴
Political Science (B.A.)
Social Science

Psychology (B.S.)⁵

Sociology/Anthropology

Anthropology (B.A.)
Sociology (B.A.)
Social Work

Special Programs

Interdisciplinary Studies (B.A. or B.S.)
Naval Science (B.N.S.)

1. Courses and teaching faculty are under the College of Agriculture.
2. Courses and teaching faculty are under the College of Business and Economics.
3. Courses and teaching faculty are under the College of Mines.
4. During the fourth, fifth and sixth years, the student takes courses in the College of Law.
5. Courses and teaching faculty are under the College of Education.

THE COLLEGE OF LETTERS AND SCIENCE is the oldest division of the University, having been established in 1900. It is the objective of the faculty (1) to provide a liberal and professional education in the arts and sciences; (2) to conduct research and disseminate the results of this research; (3) to perform service to the University at large, to the state and to the nation; and (4) to contribute to the university-wide teacher education program.

DEGREES OFFERED

The various subdivisions of the college provide over sixty undergraduate curricula and curricular options leading to the degrees of Bachelor of Arts, Bachelor of Science, Bachelor of Science in Home Economics, Bachelor of Science in Pre-Dental Studies, Bachelor of Science in Pre-Medical Studies, Bachelor of Architecture, Bachelor of Fine Arts, Bachelor of Landscape Architecture, Bachelor of Music, Bachelor of Naval Science, and Bachelor of Physics, as well as graduate study leading to master's and doctor's degrees.

DEPARTMENTS OF INSTRUCTION

Included within the College are the Departments of Art and Architecture, Biological Sciences, Chemistry, Communications, Drama-Speech, English, Foreign Languages, History, Home Economics, Mathematics, Music, Physics, Political Science, and Sociology/Anthropology. Cooperating departments from other divisions of the University include the Departments of Bacteriology, Economics, Geology and Geography, Naval Science, and Psychology, as well as the College of Law.

Art and Architecture

The Department of Art and Architecture had its origin in the year 1929 but degree granting courses in architecture dates to 1923, and art in some form has been taught in the University almost since its founding in 1889. In 1963 the department was granted a new building which is used exclusively for art and architecture. It was designed to foster the workshop method which permits students to share the work of others and have apprenticeship relationships with the professional staff. Work in both art and architecture requires broad training in drawing, painting, sculpture, pottery, design, printmaking, art education and the crafts. The courses in architecture, landscape architecture and interior design are taught integratively providing a total study of man's environment.

Biological Sciences

The Department of Biological Sciences is located in the recently renovated Life

Science Building. A herbarium with over 80,000 specimens of Idaho and Pacific Northwest plants and the bird and mammal collection containing over 5,000 specimens are valuable teaching and research tools in the department. Study and research in the biological sciences are also enhanced by the presence on the campus of such fields as entomology, wildlife management, range management, fisheries management, plant pathology, bacteriology, and applied areas in agriculture and forestry. A great diversity of biological materials is available for study since semi-desert areas, large lakes, mountainous regions, and the rolling Palouse grain country are all within one hour's drive of the campus.

Chemistry

The Departments of Chemistry and Physics share a new building which is well equipped with modern, sophisticated research and teaching equipment. For the past ten years the department has conducted an undergraduate research program supported by the National Science Foundation. In addition, students benefit from cooperative training programs with atomic energy installations in this area, and they have access to the nuclear reactor at Washington State University, just eight miles away.

Communications

The Department of Communications, in addition to its major function of offering baccalaureate-degree programs in radio-television and journalism, gives students opportunities for a wealth of practical experience in its modern laboratories in journalism and in the operation of its two fully-equipped educational broadcasting stations, KUID-TV and KUID-FM. The department provides services to the University and to the state in the preparation and dissemination of educational broadcasts and audio-visual materials.

Drama-Speech

The Department of Drama-Speech offers programs of study leading to the B.A., M.A., and M.A.T. (Drama-Sp.) degrees. The department also offers the student a wealth of practical experience in both drama and speech. Adequate preparation for teaching, professional and community work can be realized within these areas.

English

Supported by philosophy, art, history, foreign languages, and related subjects, the courses in English give students a broad cultural background, acquaint them with the great works of English and American literature, provide them with an essential knowledge of the English language and linguistics, and help them to develop clear, effective writing. Those who take the necessary courses in education may qualify for teaching in high schools; others taking the basic courses leading to a B.A. degree are prepared for many fields of graduate and professional study.

Foreign Languages

The Department of Foreign Languages offers majors in classical studies, French, German, Latin and Spanish, as well as language study in Greek, Italian and Russian. In addition, certain courses are offered in English: Survey of Classical Origins, Scientific Terminology, Modern German Literature in Translation, and Russian Literature in Translation.

History and Philosophy

The Departments of History and Philosophy offer both undergraduate and graduate work leading to careers in teaching, librarianship, administration, business, or in government services; also as preparation for entering law school or postgraduate business courses. For history the chief strengths of the library holdings are in American history, in Central and Western Europe since 1760, and in the Renaissance and Reformation.

Home Economics

In the Department of Home Economics, students achieve multidisciplinary liberal arts and professional education. The home economics education major provides for vocationally approved teacher certification or qualifies for state extension service; the clothing, textiles and design option may be coordinated with the teaching option or used professionally alone; the food and nutrition major qualifies for entrance into American Dietetics internships; and the child development major is planned in cooperation with the program of the Merrill Palmer Institute in Detroit, Michigan. Students may also choose a major coordinated with journalism or business, or they may elect general home economics or food and nutrition research. All curricula lead to entry into graduate programs in home economics throughout the nation. Highly qualified students may compete for scholarships from a large scholarship program.

Mathematics

The Department of Mathematics offers programs leading to the B.S., M.S., M.A.T. (Math), and Ph.D. degrees which prepare students for teaching, industrial work, or for positions in government laboratories. Mathematics has become increasingly important to society, creating a large need for trained mathematicians. Students with strong backgrounds or ability, whether they plan to major in mathematics or not, are invited to discuss advanced placement at any level with the department.

Music

The Department of Music holds full membership in the National Association of Schools of Music and is accredited by that agency at both the undergraduate and graduate levels. Curricula are offered leading to the degrees of Bachelor of Arts, Bachelor of Music, Master of Arts, Master of Music, and Master of Arts in Teaching Music. The department offers the student a wide range of individual and group instruction opportunities as preparation for professional careers as musicians or as teachers of music. Study is enriched through participation in numerous student and faculty recitals, as well as participation in vocal and instrumental groups ranging from chamber ensembles to large musical organizations.

Physics

The Department of Physics offers degree programs leading to the B.Phys., B.S., M.S., M.A.T.(Phys) and the Ph.D., which prepare students for teaching and research careers. The department is well equipped with modern, sophisticated teaching and research equipment and is located in the new Physical Sciences Building. Areas of current experimental and theoretical research interest include solid state physics, nuclear physics, quantum optics and laser physics, and relativity and cosmology. Studies in astronomy are carried out in the department, and experimental work is done in the physics observatory.

Political Science and Bureau of Public Affairs Research

The Department of Political Science offers both undergraduate and graduate work leading to careers in teaching, government service, foreign service, and public administration. The Bureau of Public Affairs Research conducts advanced research studies in public affairs and administration, and provides research and consultative services for state and local agencies. The Bureau has a very good and growing collection of material on state and local government which includes a collection of data on Idaho elections of great value in that field.

Preparatory Programs in Medicine and Dentistry

The pre-medical and pre-dental programs (presently administered through the

Department of Chemistry) have a much above national average record of placement of graduates in professional schools. Graduates of the programs have had good success in such schools and quite a number have subsequently become members of the faculties of medical and dental schools. Several are members of the staffs of internationally known clinics and institutes, such as the Mayo Clinic.

Sociology/Anthropology

The Department of Sociology Anthropology offers both the B.A. and M.A. degrees in sociology and in anthropology as well as a special curriculum in sociology for those interested in social work. Special areas of interest include sociological problems of developing rural populations; American Indian studies; acculturation, and historical archaeology. Special facilities include the anthropology laboratory which houses archaeological and ethnological collections; the departmental library; and adequate research space for informant interviewing, archaeological layout, drafting, and photography. The historic archaeological metals cleaning and preserving facilities are the most complete and modern in the western states. Continuing basic and applied ethnographic research is conducted on some twelve reservations near the University. Several publication outlets are sponsored by the department.

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 College, 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 which will provide a well-rounded preparation for further study. For a statement of general admission requirements, see Part I 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 is attending on a part-time basis (six-credit maximum), is a special student (eleven-credit maximum), or is admitted to the non-degree program. Except for the two-year program in pre-dental studies, the one- and two-year programs in pre-nursing studies, and the pre-college, accelerated program in music, a regular program is one that leads to a degree which the College offers.

CURRICULA AND PROGRAMS OFFERED

Undergraduate

Majors are offered in anthropology, architecture, art, bacteriology, biology, botany, chemistry, classical studies, drama, economics, English, French, geography, German, history, home economics, interdisciplinary studies, interior design, journalism, landscape architecture, Latin, law (combined B.A. and J.D.), mathematics, music, music education, naval science, philosophy, physics, political science, pre-dental studies, pre-medical studies, pre-nursing studies, pre-physical therapy, psychology, radio-television, sociology, Spanish, speech, and zoology. The various options available under these major fields, together with detailed statements of requirements, are presented in the departmental curricula at the conclusion of this section.

Graduate

The Graduate School of the University offers work toward advanced degrees in many 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 graduate bulletin for further information.

In the College of Letters and Science, graduate study leading to the master's degree is available in the fields of anthropology, art, architecture, biology, bo-

tany, chemistry, drama, English, history, home economics, mathematics, music, philosophy, physics, political science, social science, sociology, and zoology. See Part I for a complete list of graduate majors.

Graduate study leading to the degree of Doctor of Philosophy is available in the College in the fields of botany, chemistry, history, mathematics, physics, political science, and zoology.

NON-DEGREE PROGRAM

The College offers a non-degree program in which each student's course of study is worked out to meet his 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, and (3) whose objectives are not provided for by any of the established curricula in the College. Characteristic examples of such students are those who plan to become pharmacists, optometrists, dental technicians, or dental hygienists.

INTERDISCIPLINARY STUDIES

Students who have broad educational goals which necessitate work in several disciplines or departments may present an interdisciplinary curriculum under the B.A. or B.S. degree. For details, see the program in interdisciplinary studies in the curriculum portion of this college section.

COLLEGE HONORS PROGRAM

An honors program is offered to superior students, and is intended primarily to provide more advanced and more individual study than normally is available to undergraduates. Those successfully completing the requirements of this program are awarded special recognition upon graduation.

The program consists of five courses which are listed in a special honors course section in Part III of this catalog. Students are admitted to the program by invitation of the honors committee, normally at the beginning of the sophomore year. Those who are interested should make their interests known to their instructors. Instructors are expected to recommend candidates for the program to the honors committee. It should be stressed that the program is highly selective and completely voluntary. Although there are no specific courses for first-year students, there are several special classes available for exceptionally gifted, well-prepared freshmen. Admission to these classes is secured through permission of the departments concerned.

The honors committee is responsible for continuous supervision of the program and of the work of individual honors students, and makes the final decision as to the awarding of honors at graduation.

CERTIFICATION FOR TEACHING

Students in the College of Letters and Science who wish to qualify for a teacher's certificate should apply for admission to the teacher education program during their sophomore year. Information and forms are available in the College office. Prospective teachers should assure themselves through consulting with their advisers that they are registering for sufficient credits to meet state certification requirements. These requirements change from time to time and from state to state. It may be necessary for such students to take more than the minimum number of credits required for the baccalaureate degree.

GENERAL REQUIREMENTS FOR GRADUATION

University Requirements

In addition to the all-university requirements for graduation (see general regulation "J" in Part I) including Eng 101-102, English Composition, and physical education, candidates for the degree of Bachelor of Arts or Bachelor of Science must satisfy the following additional requirements in humanities, science, social science, and foreign language, except that these general requirements for the B.A. and B.S. degree are waived in the area of the major.

General College Requirements for B.A. and B.S. Degrees (26 to 52 credits)

A. *HUMANITIES (7 credits minimum)*. At least three approved courses dealing with the history or appreciation of art, architecture, drama, literature, or music.

B. *SCIENCE (12 credits minimum)*. At least three courses to be taken in two or more of the following fields: bacteriology, biology, botany, chemistry, entomology, geology, mathematics, physics, and zoology. (Geog 103 and Psych 201-202 may be included as courses satisfying this requirement.) Except in mathematics, no more than 4 credits are acceptable toward this requirement unless they are earned in courses that include laboratory work.

C. *SOCIAL SCIENCES (7 credits minimum)*. At least three courses to be taken in two or more of the following fields: anthropology, economics, geography (excluding physical geography and cartography), history, philosophy, political science, psychology (excluding Psych 205-206 and the more physiologically oriented courses), and sociology.

D. *FOREIGN LANGUAGE (0-16 credits)*. The basic requirement is proficiency in one foreign language, equivalent to that gained by completion of four semesters of college courses. This requirement may be satisfied by presenting four high school units in one foreign language. A student presenting two high school units may fulfill the requirement by completing a second year of the same language at the University. For guidance in choosing the proper course level in a foreign language, see the foreign language course section in Part III.

A total of 128 semester credits is required for a degree unless otherwise stated in the curriculum. Thirty-six semester credits must be taken in courses numbered 300 or above.

Progress in Satisfying These Requirements

A student 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:

1. A student seeking the B.A. degree must take courses in fulfillment of the foreign language requirement as early as possible. If he cannot do this during his first semester, he must immediately take a course that can be used in partial fulfillment of his science-mathematics requirement.
2. A student seeking the B.S. degree must immediately take either a course that applies toward the foreign language requirement or a science course that can be used in the fulfillment of the general requirements or the requirements of his major. He must begin to take courses in fulfillment of his foreign language requirement no later than the beginning of his sophomore year unless the program recommended for his major permits a delay.

Selection of a Major

Each student must select a major (curriculum) not later than the beginning of the junior year.

DEPARTMENTAL CURRICULA

The major requirements for the baccalaureate degree usually include twenty or more semester credits in courses numbered 300 or above, and generally the same number of credits in related fields. The departmental requirements are stated under the respective curricula (arranged in alphabetical order in this section).

In order to qualify for either the degree of Bachelor of Arts or Bachelor of Science, both the general requirements for the B.A. and B.S. degrees (above) and the specific departmental requirements (below) must be met. For the requirements for each of the other degrees, i.e., B.S.(H.Ec.), B.S.(Pre-Dent.), B.S.(Pre-Med.), B.Arch., B.F.A., B.L.Arch., B.Mus., B.N.S., and B.Phys., see the requirements in the specific departmental curricula for the appropriate majors as listed below.

ANTHROPOLOGY (B.A.)

General requirements, plus **Anthro 110** (Intro to Phys Anthro & Arch), **Anthro 120** (Intro to Social Anthro), **Psych 317** (Intro to Stat for Psych and Educ), **Soc 110** (Intro to Soc), **Soc 411** (Contemp Soc); and 15 additional credits in anthropology numbered 300 or above, plus 15 credits in related fields, including at least three of the following: **Econ 490** (Comp Econ Sys); **Eng 442** (Intro to Ling); **Geog 112** (Econ Geog); **Hist 465-466** (Soc & Cult Hist of Europe); **Muse 301** (Intro to Museology); **Phil 411** (Phil of Sci); **PolSci 285-286** (Comp Govt); **Psych 320** (Soc Psych); **Psych 461** (Psych of Pers); **Soc 320** (The Family); **Soc 321** (The Community); **Soc 420** (Soc Institutions); **Soc 421** (Pop & Migra).

ARCHITECTURE (B.Arch.)

A five-year professional curriculum requiring 160 semester credits. The program is divided into the pre-professional (first two years) and the professional (remaining three years). A cumulative grade point average of 2.5 in all required courses in art and in all required courses in architecture in the two pre-professional years is required for admission to the professional program. The 2.5 average must be maintained in all such courses in order to remain in good standing in the department. Students in architecture must complete a total of 12 credits from at least two of the following fields: anthropology, economics, geography, history, philosophy, political science, psychology, and sociology.

FIRST YEAR

Arch 155-156 (Intro to Arch), **Art 111-112** (Drawing I), **Engr 131** (Dig Comp Progr), **Eng 101-102** (Eng Comp), **Math 140*** (Coll Alg), **Math 141*** (Anal Trig), **Math 180** (Anal Geom & Calc, I); **PE 131** (Freshman Phys Ed, one activity course each semester); plus 4 credits in approved electives.

SECOND YEAR

Arch 255-256 (Integr Prob I, 6 cr), **Arch 263** (Prog & Sys I), **Arch 265-266** (Mat & Meth), **Arch 275** (Hist of Ancient Arch), **Arch 276** (Hist of Medieval Arch); **Art 121-122** (Design I); **Eng 317** (Tech & Engr Report Wr); **PE 233** (Soph Phys Ed, one activity course each semester); **Phys 113-114** (Gen Phys); plus 4 credits in approved electives.

THIRD YEAR

Arch 353-354 (L Arch III-IV); **Arch 355-356** (Integr Prob II, 6 cr), **Arch 363** (Prog & Sys II), **Arch 365-366** (Bldg Tech I), **Arch 375** (Hist of Renaissance Arch), **Arch 376** (Hist of Mod Arch), 4 credits in approved electives, plus at least 3 credits from **Art 101, 102**, (Surv of Art), **Art 211, 212** (Drawing II), **Art 223, 224** (Lettering & Layout) **Art 231-232** (Painting).

FOURTH YEAR

Arch 455-456 (Integr Prob III, 8 cr), **Arch 463** (Prog & Sys III), **Arch 465-466** (Bldg Tech II), **Arch 467-468** (Intro to City Planning); at least 3 credits from among **Art 233, 234** (Water Color I), **Art 241, 242** (Sculpture I), **Art 261, 262** (Ceramics II), plus approved electives.

FIFTH YEAR

Arch 473-474 (Seminar, Research Meth), **Arch 475-476** (Integr Prob IV, 8 cr), **Arch 485-486** (Bldg Tech III), **Arch 495-496-497** (Prof Prac I, II, III); and approved electives to total 160 credits.

*Prerequisites to Math 180 and/or equivalent high school units to satisfy the requirements of the Department of Mathematics.

ARCHITECTURE: INTERIOR DESIGN (B.F.A.)

Interior Design students must take 9 credits from at least two of the following fields: anthropology, economics, geography, history, philosophy, political science, psychology, and sociology.

FIRST YEAR

Arch 155-156 (Intro to Arch); **Art 101** (Surv of Art), **Art 111-112** (Drawing I), **Engr 131** (Dig Comp Progr), **Eng 101-102** (Eng Comp); **Math 111-112** (Fund of Math), or higher mathematics; **PE 131** (Freshman Phys Ed, one activity course each semester); **Soc 110** (Intro to Soc).

SECOND YEAR

Arch 255-256 (Integr Prob I, 6 cr), **Arch 263** (Prog & Sys I), **Arch 265-266** (Mat & Meth), **Arch 275** (Hist of Ancient Arch), **Arch 276** (Hist of Medieval Arch), **Art 121-122** (Design I), **Eng 317** (Tech & Engr Report Wr); **HEc 123** (Textiles), **HEc 314** (Weaving); **PE 233** (Soph Phys Ed, one activity course each semester); and 4 credits in approved electives.

THIRD YEAR

Arch 355-356 (Integr Prob II, 6 cr), **Arch 359-360** (Interiors & Mat I), **Arch 363** (Prog & Sys II), **Arch 369-370** (Space Planning I), **Arch 375** (Hist of Renaissance Arch), **Arch 376** (Hist of Modern Arch); **HEc 326** (Housing & Home Furn); plus 9 credits from **Art 223, 224** (Lettering & Layout), **Art 233-234** (Water Color I), **Art 241, 242** (Sculpture I), **Art 351, 352** (Printmaking). (These electives may be taken during both the third and fourth years.)

FOURTH YEAR

Arch 455-456 (Integr Prob III, 6 cr), **Arch 459-460** (Interiors & Mat II), **Arch 469-470** (Space Planning II), **Arch 498** (Proseminar, 3 cr), **HEc 340** (Family Relations); plus approved electives, including the completion of the 9 credits in specified art courses shown with the third year requirements, to total 128 credits.

ARCHITECTURE: LANDSCAPE (B.L.Arch.)

Students in landscape architecture are required to complete a total of 134 credits, of which at least 12 must be from at least two of the following fields: anthropology, economics, geography, history, philosophy, political science, psychology, and sociology.

FIRST YEAR

Arch 155-156 (Intro to Arch); **Art 111-112** (Drawing I); **Engr 131** (Dig Comp Progr); **Eng 101-102** (Eng Comp); **Math 111-112** (Fund of Math), or higher mathematics; **Geol 109** (Phys Geol); **PE 131** (Freshman Phys Ed, one activity course each semester); **Soils 205** (Adv Lab Tech); and 2 credits in approved electives.

SECOND YEAR

Arch 255-256 (Integr Prob I, 4 cr total), **Arch 263** (Prog & Sys I), **Arch 275** (Hist of Ancient Arch), **Arch 276** (Hist of Medieval Arch), **Arch 283-284** (Landscape Arch I-II); **Art 121-122** (Design I); **Eng 317** (Tech & Engr Report Wr); **Geog 252** (Cultural Geog); **PE 233** (Soph Phys Ed, one activity course each semester); **PisC 317** (Woody Plant Mat); **Psych 100** (Intro to Psych); and 2 credits in approved electives.

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THIRD YEAR

Arch 355-356 (Integr Prob II, 4 cr total), **Arch 363** (Progr & Sys II), **Arch 375** (Hist of Renaissance Arch), **Arch 376** (Hist of Modern Arch), **Arch 383** (Landscape Constr), **Arch 384** (Plant Mat & Pl Design), **For 487** (Forest Recreation); **Geol 401** (Phys Geol); **PolSc 276** (Am Local Govt); and 6 credits from **Art 101, 102** (Surv of Art) **Art 211, 212** (Drawing II), **Art 223, 224** (Lettering & Layout), **Art 231, 232** (Painting II), **Art 233, 234** (Water Color II), **Art 241, 242** (Sculpture I), **Art 261, 262** (Ceramics I); plus 3 credits in approved electives.

FOURTH YEAR

Arch 455-456 (Integr Prob III, 4 cr total), **Arch 467-468** (Intro to City Planning), **Arch 483** (Park & Recr Planning), **Arch 484** (Regional Landscape Pl); **Bot 432** (Plant Ecology), **Bot 435** (Synecology); 3 credits in recreational geography, plus approved electives to total 134 credits.

ART (B.A.)

General requirements, plus: **Art 101-102** (Surv of Art), **Art 111-112** (Drawing II), **Art 121-122** (Design II), **Art 211-212** (Drawing II), **Art 231-232** (Painting I, 6 cr), **Art 301-302** (Hist of Painting); and 12 credits from **Art 223, 224** (Lettering & Layout), **Art 233, 234** (Water Color II), **Art 241, 242** (Sculpture II), **Art 361, 362** (Ceramics III); plus one of the following options:

A. Design Option

Art 323-324 (Graphic Design II), **Art 331-332** (Painting II, 4 cr), **Art 333-334** (Water Color II), **Art 351-352** (Printmaking), **Art 423-424** (Graphic Design II), **Art 497a** (Proseminar, 6 cr), **Bus 323** (Prin of Adv).

B. Sculpture Option

Art 261-262 (Ceramics I), **Art 341-342** (Sculpture II), **Art 351-352** (Printmaking), **Art 435** (Special Prob 4 cr), **Art 497a** (Proseminar, 6 cr).

C. Painting Option

Art 331-332 (Painting II, 6 cr), **Art 335-336** (Composition), **Art 431-432** (Painting III, 6 cr), **Art 435** (Special Prob, 4 cr), **Art 497a** (Proseminar, 4 cr). Recommended: **Art 351-352** (Printmaking).

D. Art Education Option (B.A. Degree)

Art 391 or 392 (Crafts in Art Ed), **Art 497b** (Proseminar, 6 cr), and 10 credits from **Art 331, 332**, (Painting II), **Art 333, 334** (Water Color II), **Art 361** (Ceramics II); or other approved art electives; **Ed 287** (Found of Ed), **Ed 314** (Gen Sec Sch Meth), **Ed 319** (Sec Sch Art Meth), **Ed 445** (Student Teaching Seminar), and 9 credits in **Ed 431** (Sec Sch Student Teaching), or in **Ed 431 and Ed 435 combined**; plus **Psych 205 or 206** (Dev Psych), or **Psych 421** (Ed Psych). Students electing option "D" take **Psych 100** (Intro to Psych) and at least one course in either American history or American government as part of the general college requirements in social science.

ART (B.F.A.)

In addition to the all-university requirements in English and physical education, the following courses and areas are required: **Arch 276** (Hist of Medieval Arch) **Arch 375** (Hist of Renaissance Arch); **Art 101-102** (Surv of Art), **Art 111-112** (Drawing II), **Art 121-122** (Design II), **Art 211-212** (Drawing II), **Art 231-232** (Painting I, 6 cr), **Art 301-302** (Hist of Painting), plus 18 credits in approved art electives, including

Art 223-224 (Lettering & Layout) — design option students only), and **Art 241-242** (Sculpture I — sculpture option students only); 3 credits in literature; 8 credits in science; 12 credits in social science; and completion of option "A", "B", or "C" under the curriculum for the B.A. degree in art (see above), or option "D" below.

D. Art Education Option (B.F.A. Degree)

Art 497b (Proseminar, 6 cr), **Art 391 or 392** (Crafts in Art Ed), and 10 credits from **Art 331, 332** (Painting II), **Art 333, 334** (Water Color II), **Art 361** (Ceramics III); plus 7 credits in approved art electives; and **Ed 287** (Found of Ed); **Ed 314** (Gen Sec Sch Meth); **Ed 319** (Sec Sch Art Meth), **Ed 445** (Student Teaching Seminar), and 9 credits in **Ed 431** (Sec Sch Student Teaching) or in **Ed 431 and Ed 435 combined**. Students under the B.F.A. option "D" include, as a part of the 12-credit requirement in social sciences, **Psych 100** (Intro to Psych), and **Psych 205 or 206** (Dev Psych) or **Psych 421** (Ed Psych), and at least one course in either American history of American government.

BACTERIOLOGY (B.S.)

General requirements, plus:

Course	Credits
Bact 250 General Bacteriology	4
Bact 304 Pathogenic Bacteriology	4
Bact 402 Food & App Microbiol	4
Bact 409 Immunology & Serology	4
Bact 414 Clinical Lab Methods	2
Bact 450 Bacteriological Lit	2
Chem 103 Intro to Chem, or Chem 111 Prin of Chemistry	4-5
Chem 112 Inorg Ch & Q Anal	5
Chem 253 Quant Analysis	5
Chem 277, 278, 372, 374 Org Chem	8
Math 140-141 Coll Alg & An Trig	5
Phys 113-114 Gen Physics	8

Women students enrolled in this curriculum need not take PE 101, Healthful Living.

Electives —A wide choice of electives may be exercised in consultation with the head of the Department of Bacteriology.

BACTERIOLOGY: MEDICAL TECHNOLOGY OPTION (B.S.)

General requirements, plus:

Course	Credits
Bact 250 General Bacteriology	4
Bact 304 Pathogenic Bact	4
Bact 402 Food & App Microbiol	4
Bact 409 Immunology & Serology	4
Bact 414 Clinical Lab Methods	4
Bact 450 Bacteriological Lit	2
Biol 201 Intro to Life Sc	4
Biol 202 General Zoology	4
Chem 103 Intro to Chem, or Chem 111 Prin of Chemistry	4-5
Chem 112 Inorg Ch & Q Anal	5
Chem 253 Quantitative Anal	5
Chem 277-278 Org Chem, or Chem 275-276 Carbon Compounds	4
Eng 317 Tech & Engr Report Wr	3
Math 111 Fund of Math, or Math 140-141 Coll Alg & Anal Trig	4-5

Plus completion of either of the options below:
Women students enrolled in this curriculum need not take PE 101, Healthful Living.

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BACTERIOLOGY: MEDICAL TECHNOLOGY OPTION (Cont.)

Electives — A wide choice of electives may be exercised in consultation with the head of the Department of Bacteriology.

Option I

Twelve months' hospital training in an approved school of medical technology is required to qualify for registration with the American Society of Clinical Pathologists. A maximum of 32 semester credits can be obtained, following the junior year, for the satisfactory completion of this work in hospitals affiliated with the University of Idaho. Under this plan the student becomes a candidate for the B.S. degree when the internship is completed. Hospitals now affiliated with the University include St. Luke's in Boise and the Deaconess and St. Luke's in Spokane, Wn. Students electing option I must consult the head of the Department of Bacteriology before the end of their freshman year.

Option II

Those students who wish to receive the B.S. degree before entering hospital training may do so by completing 32 credits during the senior year in courses approved by the head of the Department of Bacteriology.

BIOLOGY (B.S.)

Freshman Year Course	Credits	
	1st	2nd
Biol 201 Intro to Life Sc	-	4
Chem 111 Prin of Chemistry	4	-
Chem 112 Inorg Ch & Q Anal	-	5
Math 140 College Alg	3	-
Math 141 Anal Trig	-	2
Eng 101-102 English Comp	3	3
Social Science Elective	3	3
Humanities Elective	2	-
PE 101 Healthf Liv (Women)	(2)	-
Phys Ed Activities	½-1	½-1
	15 ½-18	17 ½-18

Sophomore Year Course	Credits	
	1st	2nd
Biol 202 Gen Zoology	4	-
Biol 203 Gen Botany	-	4
Bact 250 Gen Bacteriology	-	4
Chem 275, 276 Carb C & Lab	4	-
Humanities Elective	3	-
Foreign Language Elective	4	4
Phys Ed Activities	½-1	½-1
*Undesignated Elective	-	3
	15 ½-16	15 ½-16

Junior Year Course	Credits	
	1st	2nd
Biol 331 Gen Ecology	-	3
Biol 351, 352 Gen Genet	-	4
Bot 311 Plant Physiology	4	-
Zool 323 Comp Embry or Zool 324 Anatomy	-	4
Foreign Language Elective	4	4
Humanities Elective	-	2
Social Science Elective	3	-
*Undesignated Elective	5	-
	16	17

Senior Year Course	Credits	
	1st	2nd
Biol 361 Biological Lit	4	-
Bot 425 Dev Plant Anat	4	-
Zool 315 Gen Physiology	4	-
*Undesignated Electives	7	11-15
	16	11-15

*At least 16 hours of the total electives must be at the upper-division (300 or 400) level.

BOTANY (B.S.)

Freshman Year Course	Credits	
	1st	2nd
Biol 201 Intro to Life Sc	-	4
Chem 111 Prin of Chem	4	-
Chem 112 Inorg Ch & Q Anal	-	5
Math 140 College Algebra	3	-
Math 141 Anal Trig	2	-
Math 180 Anal Geom & Calc I	-	5
Eng 101-102 English Comp	3	3
PE 101 Healthf Liv (Women)	(2)	-
Phys Ed Activities	½-1	½-1
Social Science Elective	3	-
	15 ½-18	15 ½-18

Sophomore Year Course	Credits	
	1st	2nd
Biol 202 Gen Zoology	4	-
Biol 203 Gen Botany	-	4
Chem 253 Quant Analysis	5	-
Chem 277-278 Org Chm & Lab	-	4
Foreign Language Elective	4	4
Humanities Elective	3	-
Phys Ed Activities	½-1	½-1
Social Science Elective	-	3
	16 ½-17	15 ½-16

Junior Year Course	Credits	
	1st	2nd
Biol 331 Gen Ecology	-	3
Biol 351, 352 Gen Genet-Lab	-	4
Chem 372, 374, Org Ch & Lab	4	-
Humanities Elective	2	2
Foreign Language Elective	4	4
Social Science Elective	3	-
*Undesignated Elective	4	4
	17	17

Senior Year Course	Credits	
	1st	2nd
Biol 361 Biological Lit	1	-
Phys 113-114 Gen Physics	4	4
Bot 311 Plant Physiology	3	-
Bot 425 Dev Plant Anat	4	-
*Undesignated Electives	5	4-8
	17	8-12

*At least 17 hours of the total electives must be at the upper-division level. At least 5 hours of the electives must be in the major, as well as upper-division (upper-division courses in biology may be counted as major credit in botany).

CHEMISTRY (B.S.)

General Requirements, plus:

Course	Credits
Chem 103 Intro to Chem	4-5
or Chem 111 Prin of Chem	(4)
Chem 112 Inorg Chem & Q Anal	5
Chem 253 Quant Analysis	5
Chem 305-306 Physical Chem	6
Chem 307-308 Phys Chem Lab	2
Chem 409 Proseminar	1
Chem 277, 372 Org Chemistry	6
Chem 278, 376 Org Chem Lab	3
Math 180, 190, 200 Anal Geom	

& Calculus I, II, III 11
 Phys 210-211-212 Engr Phys 9
 Appropriate courses in chemistry, physics, and mathematics are available for students who wish to qualify for certification to the American Chemical Society. For certification, students must have elected German or Russian as a foreign language.

CHEMISTRY: TECHNICAL LITERATURE OPTION (B.S.)

General requirements, plus:

Course	Credits
Chem 103 Intro to Chem	
or Chem 111 Prin of Chem	(4)
Chem 112 Inorg Ch & Qual Anal	5
Chem 253 Quantitative Anal	5
Chem 305-306 Physical Chem	6
Chem 307-308 Phys Chem Lab	2
Chem 409 Proseminar	1
Chem 277, 372 Organic Chem	6
Chem 278, 376 Org Chem Lab	3
Eng 317 Tech & Engr Report Wr	3
FL 101-102 Elem French, or	
FL 171-172 Elem Russian	8
FL 121-122 Elem German	8
FL 223-224 Scientific German	8
Math 180, 190, 200 Analytic	
Geom & Calculus I, II, III	11
Phys 113-114 Gen Phys	8
or Phys 210-211-212 Engr Phys	(9)

CLASSICAL STUDIES (B.A.)

General requirements, plus:

Course	Credits
Art 101 Survey of Art	2
Eng 111 Lit of Western Civ	3
* FL 141-142 Elementary Greek	8
* FL 161-162 Elementary Latin	8
FL 163 Surv of Classical Orig	3
* FL 261-262 Interm Latin	8
Phil 101 Intro to Philosophy	3
Additional Latin courses numbered	
above 262	12
Plus five courses from the following:	
Anthro 330 World Prehistory	3
Arch 275 Hist of Ancient Arch	2
Arch 276 Hist of Medieval Arch	2
Arch 375 Hist of Renaissance Arch	2
Drama 467 The Theatre	3
Eng 442 Intro to Linguistics	3
FL 305 Survey of French Lit	3
FL 327 Survey of German Lit	3
FL 373 Russian Lit in Trans	3
FL 385 Survey of Spanish Lit	3
Hist 441-442 Greek & Roman Hist	6
Phil 309 Hist of Ancient Phil	3
Sp 494 Intro to Rhetorical Th	2
Recommended elective:	
FL 241-242 Interm Greek	8

*Or equivalent.

DRAMA (B.A.)

General requirements, plus:

Course	Credits
Drama 102 Stage Makeup	1
Drama 105 Basis of Performance	2
Drama 190 Theatre Practice I	4
Drama 263 Technical Production	3
Drama 264 Stage Lighting	3
Drama 271 Play Anal for Prod	3
Drama 272 Interm Acting	3
Drama 362 Costume for the Stage	2
* Drama 390 Theatre Prac II (only	
if 190 not taken)	(4)
** Drama 407-408 Styles of Acting	4
Drama 420 Production Management	2
Drama 467-468 The Theatre	6
Drama 471-472 Directing	6
*** Courses in related fields	20

And completion of either of the options below:

A. Acting-Directing Option

Course	Credits
** Drama 305 Stage Movement	2
** Drama 306 Dialect & Diction	2

B. Technical Theatre Option

Course	Credits
Drama 320 Adv Stage Lighting	2
Drama 364 Sc Design & Tech Prob	2

* A student who does not become a major in drama until his junior year will take Drama 390 for 4 credits in lieu of 4 credits in 190.

** Four credits in Drama 395, Summer Theatre II, may be substituted for four credits in 305-306 or 407-408.

*** The selection of courses in related fields must be approved by the head of department.

ECONOMICS (B.A.)

General requirements, plus: **Actg 131-132** (Prin Actg); **Bus 231** (Stat); **Econ 251-252** (Prin Econ), **Econ 321** (Interm Microeconomic Anal), **Econ 372** (Interm Macroeconomic Anal); **Math 111-112** (Fund of Math), or **Math 140-141** (Coll Alg & Anal Trig) or **Math 180** (Anal Geom & Calc II); and 18 upper-division credits in economics, plus 15 upper-division credits from anthropology, geography, history, philosophy, political science, or sociology. Credits earned in mathematics beyond the stated mathematics requirements above will be accepted in satisfaction of this 18 credit requirement.

ENGLISH (B.A.)

General requirements, plus **Eng 267-268** (Surv of Eng Lit), and at least 26 credits in English courses, numbered 253 or above, excluding 313 (Bus Wr) and 317 (Tech & Engr Report Wr), and including at least 8 credits in American literature, and not more than 6 credits in expository composition or literary composition or linguistics, and not more than 12 credits for any combination of such courses; plus 20 credits in related fields approved by the head of department. Recommended elective for the prospective major, **Eng 111-112** (Lit of Western Civ).

Final Examination

A final, comprehensive examination may be required of all majors. It may include such a test as the Graduate Record Examination for which a fee is charged.

FRENCH (B.A.)

General requirements, plus **FL 101-102** (Elem French), and **FL 201-202** (Intern French) or equivalent; 20 additional credits in French; a reading knowledge of another foreign language; and 20 credits in related fields approved by the head of the Department of Foreign Languages.

GEOGRAPHY (B.A.)

General requirements, plus:

Course	Credits
Geog 103 Physical Geography	4
Geog 112 Economic Geography	3
Geog 251 Intro Cartography	3
Geog 252 Cultural Geography	3
Geog 254 World Regional Geog	2
Geog 495 Proseminar	1
Geol 109 Physical Geology	4
And 18 upper-division credits in geography; plus 20 credits in related fields chosen with the approval of the chairman of geography. It is normally expected that the main related fields shall be anthropology, economics, history, political science, and sociology.	

GERMAN (B.A.)

General requirements, plus **FL 121-122** (Elem German), and **FL 221-222** (Intern German) or equivalent; 20 additional credits in German; a reading knowledge of another foreign language; and 20 credits in related fields approved by the head of the Department of Foreign Languages.

HISTORY (B.A.)

General requirements, plus 12 credits from **Hist 101-102** (Hist of Civ), **Hist 111-112** (Intro to U.S. Hist), **Hist 271-272** (Hist of England); and 20 credits in history courses numbered 300 or above; plus 20 credits in related fields to complete the total of 52 credits. The choice of specific courses in the above groups must be approved by the head of the Department of History. Recommended preparation: at least 6 credits from introductory courses in any two other social sciences.

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

Basic Program

Course	Credits
Chem 103 Intro to Chem, or Chem 111 Prin of Chemistry	4-5
Chem 114 Gen Chemistry, or Chem 275 Carbon Compounds	3-4
Eng 101-102 English Composition	6
HEc 113 Art	3
HEc 123 Textiles	3
HEc 124 Clothing	3
HEc 229 Clothing Selection	2
HEc 270 Nutrition	3
HEc 271 Foods	3
HEc 272 Food Management	3
HEc 326 Housing & Home Furn	3
HEc 334 Child Development	3
HEc 340 Family Relations	2
HEc 346 Prin of Home Mgt	2
HEc 347 Home Mgt House Res, or HEc 349 Home Mgt for Mar Stu	3
HEc 448 Consumer Education	2
HEc 470 Problems in Nutrition	3
Physical Educ Activities	4
PE 101 Healthf Liv, or Bact 250 Gen Bact, or Bact 254 Public Health & Hygiene	2-4
Psych 100 Intro to Psych	3
Soc 110 Intro to Sociology	3
Soc 320 The Family	3

Zool 118 Intro to Human Phys	3
Zool 127 Intro to Human Anat	3

Plus one of the following options:

A. General Home Economics Option

Foreign Lang or Humanities	7-9
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B. Journalism Option

Jour 221 News Writing	2
Jour 222 Reporting	3
Jour 354 News Editing	3
Jour 432 Mag Article Writing	2
Jour 472 Prin Public Relations	3
Electives from journalism, photography, or radio-TV	7

C. Business Option

Actg 131-132 Prin of Actg	6
Bus 321 Marketing	3
Econ 251-252 Prin of Econ	6
Business Electives	6

HOME ECONOMICS: EDUCATION

(B.S.H.Ec.)

Course	Credits
Bact 250 Gen Bacteriology	4
Chem 103 Intro to Chem, or Chem 111 Prin of Chemistry	4-5
Chem 114 Gen Chem, or Chem 275 Carbon Compounds	3-4
Eng 101-102 English Comp	6
HEc 113 Art	3
HEc 123 Textiles	3
HEc 124 Clothing	3
HEc 229 Clothing Selection	2
HEc 242 Household Equipment	3
HEc 270 Nutrition	3
HEc 271 Foods	3
HEc 272 Food Management	3
HEc 324 Flat Pattern Study	3
HEc 326 Housing & Home Furn	3
HEc 334 Child Development	3
HEc 340 Family Relations	2
HEc 346 Prin of Home Mgt	2
HEc 347 Home Mgt House Res, or HEc 349 Home Mgt for Mar Stu	3
HEc 448 Consumer Education	2
HEc 470 Problems in Nutrition	3
Phys Ed Activities	4
Psych 100 Intro to Psych	3
Soc 110 Intro to Sociology	3
Social Science electives	3
Zool 118 Intro Human Phys	3
Zool 127 Intro Human Anat	3

Plus one of the following options:

A. Teaching Option

AgEd 351 Principles of Voc Ed	2
Ed 287 Foundations of Educ	4
HEc 352 Meth in Teaching H Ec	3
HEc 453 Prob in Teaching H Ec	2
HEc 456 Meth in Adult H Ec Ed	2
HEc 457 Stu Teaching in H Ec	9
Psych 206 Dev Psychology	3

Plus approved courses for a second teaching field or minor.

B. Extension Option

AgEd 348 Extension Methods	2
Advanced psychology or sociology	3
Plus courses in option A (above), except HEc 453 and 457.	

Recommended electives for students in home economics education:

(Continued on next page)

Art 101 or 102 Survey of Art	2
BusEd 497 Coordination Tech	3
Ed 428 Audio-Visual Aids	3
HEC 314 Weaving	3
HEC 335 Hist & Phil of Child Dev	2
Psych 420 Prin & Prac in Guidance	3
Sp 131 Fundamentals of Speech	2

HOME ECONOMICS: FOOD AND NUTRITION (B.S.H.Ec.)

Course	Credits
Anl 305 Prin of Nutrition	3
Bact 250 Gen Bacteriology	4
Chem 103 Intro to Chem, or Chem 111 Prin of Chemistry	4-5
Chem 112 Inorg Ch & Qual Anal	5
Eng 101-102 English Comp	6
HEC 270 Nutrition	3
HEC 271 Foods	3
HEC 272 Food Management	3
HEC 346 Prin of Home Mgt	2
HEC 470 Prob in Nutrition	3
HEC 471 Dietetics	4
HEC 472 Food Chem & Analysis	3
Phys Ed Activities	4
Psych 100 Intro to Psych	3
Social Science electives	6
Soc 110 Intro to Sociology	3
Zool 118 Intro Human Phys	3
Zool 127 Intro Human Anat	3

Plus one of the following options:

A. Dietetics and Institutional Management Option

Actg 131 Prin of Actg	3
Bus 412 Personnel Management	3
Chem 275 Carbon Compounds	3
Chem 276 Carbon Compounds Lab	1
Chem 480 Elements of Biochem	3
Chem 483 Biochem Lab	1
Econ 251 Prin of Economics	3
HEC 113 Art	3
HEC 123 Textiles	3
HEC 334 Child Development	3
HEC 482 Quantity Cookery	3
HEC 483 Institution Admin	4
HEC 485 Institution Food Buying	2
Psych 421 Educ Psychology	3

Recommended but not required:

HEC 124 Clothing	3
HEC 347 or 349 Home Mgt	3

B. Food and Nutrition Research Option

Bact 402 Food & Appl Microb	4
Chem 253 Quantitative Anal	5
Chem 277 Organic Chemistry I	3
Chem 278 Organic Chem Lab I	1
Chem 372 Organic Chemistry II	3
Chem 374 Organic Chem II Lab	1
Math 140 College Algebra	3
Math 141 Analytic Trig	2
Math 180 Anal Geom & Calc I	4

At least 15 credits from the following courses:

Ag 321 Biometry	3
AgBic 431 Chem & Phys of Vitamins	3
Biol 201 Intro to Life Sc	4
Chem 481-482 Biochemistry	6
Chem 483-484 Biochemistry Lab	2
Eng 317 Tech & Engr Report Wr	3

Proficiency in one foreign language equivalent to completion of FL 201-202 Interim French, or FL 221-222 Interim German

HEC 113 Art	3
HEC 123 Textiles	3

HEc 124 Clothing	3
HEc 334 Child Development	3
HEc 347 Home Mgt House Res	3
Math 190 Anal Geom & Calc II	4
Math 200 Anal Geom & Calc III	3

HOME ECONOMICS: CLOTHING, TEXTILES, AND DESIGN (B.S.H.Ec.)

Course	Credits
Art 101-102 Survey of Art	4
Bact 250 Gen Bacteriology	4
Bus 323 Prin of Advertising	3
Chem 103 Intro to Chem, or Chem 111 Prin of Chemistry	4-5
Chem 275 Carbon Compounds	3
Eng 101-102 English Comp	6
HEC 113 Art	3
HEC 123 Textiles	3
HEC 124 Clothing	3
HEC 229 Clothing Selection	2
HEC 270 Nutrition	3
HEC 271 Foods	3
HEC 314 Weaving	3
HEC 324 Flat Pattern Study	3
HEC 326 Housing & Home Furn	3
HEc 334 Child Development	3
HEC 413 Textile Design	2
HEC 423 Advanced Textiles	3
HEC 448 Consumer Education	2
HEc 340 Family Relations, or HEc 346 Prin of Home Mgt, or Soc 320 The Family	2-3
Phys Ed Activities	4
Psych 100 Intro to Psych	3
Social Science electives	3
Soc 110 Intro to Sociology	3
Zool 118 Intro Human Phys	3
Zool 127 Intro Human Anat	3

Plus one of the following options:

A. Clothing Option

HEc 327 Tailoring	3
HEc 329 Hist of Costume & Text	3
HEc 424 Original Design	3
HEc 429 Soc Psych Asp of Cl	2

B. Interiors Option

HEc 426 Hist of Inter & Furn	3
HEc 428 Family Housing	2

HOME ECONOMICS: CHILD DEVELOPMENT (B.S.H.Ec.)

Course	Credits
Drama 265 Children's Theatre	3
Drama 266 Creative Dramatics	2
Ed 275 Elem Sch Art Meth, or Ed 325 Art Meth Workshop	2-3
Ed 434 Children's Literature	3
Eng 101-102 English Comp	6
HEC 113 Art	3
HEC 123 Textiles	3
HEC 124 Clothing	3
HEC 234 Intro Child Dev	2
HEC 270 Nutrition	3
HEC 271 Foods	3
HEC 326 Housing & Home Furn	3
HEc 334 Child Development	3
HEC 335 Hist & Phil Child Dev	2
HEc 340 Family Relations	2
HEc 346 Prin of Home Mgt	2

(Continued on next page)

HOME ECONOMICS: CHILD DEVELOPMENT (Cont.)

HEc 347 Home Mgt House Res. or HEc 349 Home Mgt H Married Stu	3
HEc 434 Nursery Sch Participation	2-4
Mus 381 (Ed 381) Elem Sch Mus Meth	2
Phys Ed Activities	4
PE 101 Healthful Living. or Bact 250 Gen Bact. or Bact 254 Pub Health & Hygiene	2-4
Psych 100 Intro to Psych	3
Psych 205 Dev Psychology	3
Psych 302 The Except Indiv	3
Psych 420 Prin & Prac Guidance	3
Social Science electives	6
Soc 110 Intro to Sociology	3
Soc 320 The Family	3
Sp 131 or 132 Fund of Speech	2
Zool 118 Intro Human Phys	3
Zool 127 Intro Human Anat	3
Chemistry, mathematics, or physics	8-10
Humanities electives	8-10
*Plus Merrill-Palmer Institute (approved courses)	15-16

*Students attend Merrill-Palmer Institute, Detroit, Michigan, second semester of junior year or first semester of senior year at own expense through University of Idaho cooperative plan.

INTERDISCIPLINARY STUDIES (B.A. or B.S.)

A student may present a curriculum not included among the ones listed elsewhere in this section, provided it has been 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 head of one of the L & S departments involved and (c) the L & S Committee on Interdisciplinary Programs. The general requirements for the B.A. and B.S. degree apply. A student may apply for admission to this curriculum at any time; however, a program under this major should normally be presented during the sophomore year.

JOURNALISM (B.A.)

General requirements, plus completion of one of the following options:

A. News-Editorial Option

No fewer than 24 nor more than 30 credits in journalism, including **Jour 221** (News Writing), **Jour 222** (Reporting), **Jour 247** (Typography & Printing Proc), **Jour 364** (News Editing), **Jour 423** (Pub Aff Reporting), **Jour 455** (Hist of Journ), **Journ 496** (Proseminar), and at least two of the following: **Jour 366** (Adv Copy & Layout), **Jour 432** (Mag Art Wr), **Jour 433** (Interp Contemp Aff), **Journ 472** (Prin of Pub Rel), **Journ 491** (Law of the Press), **Jour 492** (Journ & Pub Op), plus **Comm 120** (Mass Comm Free Soc), and no more than 10 additional credits in communications, photography, and radio-television; plus **Bus 323** (Prin of Adv) or **Jour 370** (Adv Media); **Econ 251-252** (Prin of Econ); history (6 cr), literature (6 cr), political science (6 cr); with no fewer than 15 upper-division credits (may include history and political science required above) in anthropology, dramatics, economics, English, geography, history, philosophy, political science, psychology, or sociology.

B. Advertising Option

Art 224 (Lettering & Layout); **Bus 231** (Statistics), **Bus 321** (Marketing), **Bus 323** (Prin of Adv), **Bus 422** (Marketing, Res & Anal), **Comm 120** (Mass Comm in a Free Soc); **Econ 251-252** (Prin of Econ); **Jour 221** (News Wr), **Jour 247** (Typography & Printing Proc), **Jour 366** (Adv Copy & Layout), **Jour 370** (Adv Media), **Jour 496** (Proseminar); **Rad-TV 493** (Commercial Broadcasting); plus at least two of the following: **Bus 421** (Marketing Prob), **Jour 362** (Retail Adv.), **Jour 472** (Prin of Pub Rel), **Jour 491** (Law of the Press), **Jour 492** (Journ & Pub Op), **Rad-TV 287** (Station Writing); in addition to no fewer than 12 upper-division credits from anthropology, art, economics, English, geography, history, philosophy, political science, psychology, or sociology.

C. Radio-Television News Option

Bus 323 (Prin of Adv) or **Jour 370** (Adv Media); **Comm 120** (Mass Comm in a Free Soc); **Econ 251-252** (Prin of Econ); **Jour 221** (News Writing), **Jour 222** (Reporting), **Jour 423** (Pub Aff Reporting), **Jour 455** (Hist of Journ), **Jour 496** (Proseminar); **Rad-TV 141** (Intro to Rad-TV Broadcasting), **Rad-TV 285** (Announcing), **Rad-TV 488** (Cinematography), **Rad-TV 494** (Radio-TV News), plus three of the following: **Jour 433** (Interp Contemp Aff), **Jour 491** (Law of the Press), **Jour 492** (Journ & Pub Op); **Photo 281** (Intro to Photography), **Rad-TV 282** (Intro to TV Prod), **Rad-TV 287** (Station Wr), **Rad-TV 493** (Commercial Broadcasting); and history (6 cr), literature (6 cr), political science (6 cr), with no fewer than 15 upper-division credits (may include history and political science required above) in anthropology, dramatics, economics, English, geography, history, political science, psychology, or sociology.

LATIN (B.A.)

General requirements, plus **FL 161-162** (Elem Latin), and **FL 261-262** (Interm Latin), or equivalent; 20 additional credits in Latin; a reading knowledge of another foreign language, and 20 credits in related fields approved by the head of the Department of Foreign Languages.

LAW (B.A. and J.D. Combined)

The B.A. degree will be awarded to candidates who complete 98 credits by the end of the junior year, including all general requirements for the B.A., 12 credits in courses numbered 300 or above with the approval of their adviser, and the 30 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 four years (during the fourth year securing the approval also of the College of Law and supplying that college a duplicate study list), and in the College of Law for the final two years.

MATHEMATICS (B.S.)

General requirements, plus:

Course	Credits
Phys 210-211-212 Engr Phys	9
Math 180, 190, 200 Anal Geom & Calc I, II, III	11
Math 184 Elements of Linear Alg	2
Math 186 Theory of Numbers (may be waived by department)	3

(Continued on next page)

Math 461 Higher Algebra	3
Math 471 Adv. Calculus	3
Math 462 Higher Alg. or Math 472 Adv Calculus	3
Two courses chosen from Math 451- 452 (Prob Theory & Math Stat), 462 (Higher Alg), 472 (Adv Calc), 482 (Adv Appl Math), or 490 (Intro to Set Theory)	6
At least 5 additional credits in upper- division mathematics courses, excluding Math 300, 320, 331, and 332	5

MUSIC AND MUSIC EDUCATION

Minor in Music

Students in other fields may, in consultation with the Department of Music, arrange a minor in music. Basic courses in the minor are: Elements of Music Theory (Mus 121-122), and Music in Western Civilization (Mus 321-322).

Transfer Students

Because the various curricula in music and music education are planned in continuity with basic courses taken during the first year, students planning to major in this department 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.

Accelerated Program

An accelerated collegiate-credit program in music for talented high school juniors is offered. The plan includes summer sessions (8 weeks each) at the close of the junior and senior years. College credit is validated when the student becomes eligible for admission to the University of Idaho. To be admitted to this program, applicants must give evidence of musical performance equal to that of freshmen admitted to the University and present proper high school records and letters of recommendation from their high school principals and music directors.

Correlated Theory-History Sequence

The three-year sequence in theory and history courses for majors is based on the evolutionary development of music from melody to counterpoint and harmony. Transfer students should consult the head of the department about placement in the program.

Concerts and Recitals

Music majors are required to attend designated musical events unless excused by the head of the department.

Graduation Examination

A final, comprehensive examination may be required of all majors in the department. It may include such a test as the Graduate Record Examination for which a fee will be charged.

Curricula

Curricula are offered leading to the degrees of Bachelor of Arts, Bachelor of Music, Master of Arts, Master of Music, and Master of Arts in Teaching Music. The specific requirements for the undergraduate curricula are listed below. Consult the graduate bulletin for the requirements for the M.A., M.Mus. and M.A.T.(Mus.) degrees.

MUSIC (B.A.)

General requirements, plus:

A. Organized Music

Regular participation each academic term in one of the large choral or instrumental groups. See credit limitation in the note accompanying these classes (Mus 103-109, 303-309) at the beginning of the music course section in Part III. Also see general University regulation J-5 (a).

B. Piano Proficiency

Minimum piano requirements for all students whose principal performing field is not a keyboard instrument, to be met by the end of the sophomore year: (1) ability to play a sonatina and a composition equal in difficulty to Schubert's "Moment Musical in A flat," Op. 95, No. 6; (2) ability to read at sight a simple accompaniment.

C. Uniform Requirements in Music

Course	Credits
*Organized Music (each academic term of enrollment)	*
*Piano or Piano Class (to satisfy proficiency requirement)	*
Mus 101 Applied Music	16
Mus 140 Convocation (registration each academic term)	0
Mus 141-142, 241-242, 341-342 Theory of Music I-II-III	22
Mus 143-144, 243-244, 343-344 History of Music I-II-III	12

D. Options

Satisfactory completion of one of the following options is required:

1. **PERFORMANCE** — Mus 265-365 and/or 280-480, 2 credits; Mus 301, 16 credits; Mus 499, Senior Recital.
2. **MUSIC LITERATURE** — Mus 265-365 and/or Mus 280-480, 4 credits; Mus 301, 2 credits; Mus 498, Proseminar.

E. Recommended Electives for Teacher Certification in Music

Candidates for the degree of Bachelor of Arts (music major) or Bachelor of Music (plan I) who wish, as a supplementary vocational objective, to qualify for a teacher's certificate should declare their intention as early as possible and apply for admission to the College of Letters and Science teacher education program. Certification requirements change from time to time and state to state. It may be necessary for such students to take more than the minimum of 128 credits required for graduation. The following is a list of courses for B.A. and B.Mus (plan I) students who wish to qualify for recommendations by the Department of Music to teach in the public schools:

Course	Credits
**Psych 100 Introduction to Psychology	3
Psych 205 or 206 Developmental	

(Continued on next page)

*No minimum credit requirements. Piano enrollment continues until the proficiency requirement has been met.

**Psych 100, Introduction to Psychology, may count toward the Letters and Science general requirement in social sciences and toward the liberal arts requirement for the B.Mus. (plan I)

MUSIC — B.A. (Cont.)

Psychology; or Psych 421 Educational Psychology	3
Ed 287 Foundations of Education	4
Ed 314 General Secondary School Methods	2
Mus 381 Elementary School Music Methods	2
Mus 385 Choral Music Education	2
Mus 386 Instrumental Music Education	2
Mus 387-388 Conducting	4
Ed 445 Student Teaching Seminar	0
Ed 432 Music Student Teaching	9

Plus one of the music teaching options (vocal or instrumental) under item "F" below.

F. Recommended Teaching Options

1. **VOCAL MUSIC TEACHING OPTION** — Regular participation each academic term in one of the large choral groups; Mus 283-284, Diction for Singers (students whose principal performing field is a keyboard instrument may substitute four credits in either Mus 147-148, Voice Class, or in individual instruction in voice for Mus 283-284), Mus 250, Instrumental Techniques, including basic proficiency in violin, clarinet, trumpet, percussion; plus six additional credits selected from Mus 250, 265, 280, 365, 431-432, 433, 435, 437, 441, 463, 464, 470, 480, or other approved electives.

2. **INSTRUMENTAL MUSIC TEACHING OPTION** Regular participation each academic term in one of the large instrumental groups; four credits in Mus 147-148, Voice Class, or in individual instruction in voice; Mus 250, Instrumental Techniques, including basic proficiency in violin, viola, cello, string bass, at least one double-reed, clarinet, flute, one other woodwind, trumpet, horn, trombone, and percussion; Mus 466, Marching Band Techniques.

MUSIC (B.Mus.)

(Plan I — Performance or Composition)

A. University Requirements

Candidates for the degree of Bachelor of Music (plan I) must complete a total of 128 semester credits of which at least 36 must be in courses numbered 300 or above. English composition, 6 credits; physical education, women, 6 credits, men, 2 credits.

B. Liberal Arts Requirements

Twenty-six credits in courses acceptable toward the College of Letters and Science general requirements for the degree of Bachelor of Arts, not counting courses in music, English composition, and physical education. As a part of this requirement, students under option 2 (see "F" below) must complete two years of one foreign language, or one year each of two foreign languages. The satisfaction of the language requirement by equivalent proficiency does not relieve the student of the obligation to earn a total of 26 credits in liberal arts courses.

C. Organized Music

Regular participation each academic term in one of the large choral or instrumental groups. The 8-credit limitation in organized music courses (Mus 103-109, 303-309) does not apply to this curriculum.

D. Piano Proficiency

Same as item "B" in the curriculum for the B.A. (music major) above.

E. Uniform Requirements in Music

Course	Credits
*Organized Music (each academic term of enrollment)	*
*Piano or Piano Class (to satisfy proficiency requirement)	*
Mus 101 Applied Music (16 credits in a principal performing field and 8 credits in a secondary performing field)	24
Mus 140 Convocation (registration each academic term)	0
Mus 141-142, 241-242, 341-342 Theory of Music I-II-III	22
Mus 143-144, 243-244, 343-344 History of Music I-II-III	12
Mus 420 or 421 Modal or Tonal Counterpoint	2
Mus 423-424 Composition	4
Mus 499 Senior Recital	0

F. Options

Satisfactory completion of at least 22 credits in one of the following options is required:

1. **PIANO OR ORGAN** — Mus. 301, Piano or Organ, 16 credits; Mus 265-365 and/or Mus 280-480, 2 credits; Mus 431 and 433.

2. **VOICE** — See language requirement under "B" above; Mus 301, Voice, 16 credits; Mus 265-365 (vocal) and/or Mus 280-480, 4 credits; plus music literature elective, 2 credits.

3. **INSTRUMENTAL** — Mus 301 (one instrument), 16 credits; Mus 265-365 (instrumental group), 4 credits; music literature elective, 2 credits.

4. **COMPOSITION** — Mus 301, 2 credits; Mus 265-365 and/or Mus 280-480, 2 credits; plus 18 approved credits in music theory, composition, counterpoint, arranging, and orchestration.

G. Recommended Electives for Teacher Certification in Music

Same as stated under items "E" and "F" in the curriculum for the Bachelor of Arts degree (music major) above.

MUSIC EDUCATION (B.Mus.)

(B.Mus. Plan II)

A. Piano Proficiency

Same as item "B" under the curriculum for the B.A. (music major) above.

B. Organized Music

Regular participation, as specified under item "D" below, each academic term. The 8-credit limitation in organized music courses (Mus 103-109, 303-309) does not apply to this curriculum.

(Continued on next page)

*No minimum credit requirements. Piano enrollment continues until the proficiency requirement has been met.

MUSIC EDUCATION (Cont.)

C. Uniform Requirements in Music

Course	Credits
* Organized Music (each academic term of enrollment)	*
* Piano or Piano Class (to satisfy proficiency requirement)	*
Applied Music (individual instruction in principal instrument or voice — Mus 101, 16 credits; Mus 301, 2 credits)	18
Mus 140 Convocation (registration each academic term)	0
Mus 141-142, 241-242, 341-342 Theory of Music I-II-III	22
Mus 143-144, 243-244, 343-344 History of Music I-II-III	12
Mus 381 Elementary School Music Methods	2
Mus 385 Choral Music Education	2
Mus 386 Instrumental Music Education	2
Mus 387-388 Conducting	4

D. Options

Satisfactory completion of one of the following options is required:

1. **VOCAL** — Regular participation each academic term in one of the large choral groups; Mus 283-284, Diction for Singers (students whose principal performing field is a keyboard instrument may substitute four credits in either Mus 147-148, Voice Class, or in individual instruction in voice for Mus 283-284); Mus 250, Instrumental Techniques, including basic proficiency in violin, clarinet, trumpet, percussion; plus six additional credits selected from among Mus 250, 265, 280, 365, 431-432, 433, 435, 437, 441, 463, 464, 470, 480, or other approved electives.

2. **INSTRUMENTAL** — Regular participation each academic term in one of the large instrumental groups; four credits in Mus 147-148, Voice Class, or individual instruction in voice; Mus 250, Instrumental Techniques, including basic proficiency in violin, viola, cello, string bass, at least one double-reed, clarinet, flute, one other woodwind, trumpet, horn, trombone, percussion; Mus 466, Marching Band Techniques.

E. General Requirements

1. **TOTAL CREDITS** — Candidates for the degree of Bachelor of Music (plan II, music education) must complete a total of 150 semester credits of which at least 36 must be in courses numbered 300 or above.

2. COURSES IN OTHER FIELDS —

Course	Credits
Eng 101-102 English Composition	6
Additional English (including literature)	6
Physical Education (Men, 2 credits; Women, 6 credits)	2-6
Social Science (including American history or American government)	9
Science and/or Mathematics (biological, physical, or earth sciences only)	12
Psych 100 Introduction to Psychology	3
Psych 205 or 206 Developmental	

(Continued on next column)

*No minimum credit requirements. Piano enrollment continues until the proficiency requirement has been met.

Psychology; or Psych 421 Educational Psychology	3
Ed 287 Foundations of Education	4
Ed 314 General Secondary School Methods	2
Ed 445 Student Teaching Seminar	0
Ed 432 Music Student Teaching	9

NAVAL SCIENCE (B.N.S.)

Required: General University requirements for the baccalaureate degree, including **Eng 101-102** (English Comp), and four activity courses in physical education; plus the normal naval science student requirements as specified by the Department of Naval Science; **Math 180, 190** (Anal Geom & Calc I, II) or higher mathematics; **Phys 113-114** (Gen Phys) or higher physics; **Sp 131** (Fund of Speech); and recommendation by the head of the Department of Naval Science; plus be making normal progress toward another university degree as approved by the dean of the division concerned. (The requirements shall be interpreted to include completion of at least eighty percent of the requirements for the degree in question.)

A student in Naval ROTC 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 this 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 is registered for his regular baccalaureate degree.

PHILOSOPHY (B.A.)

General requirements, plus **Phil 201** (Ethics), **Phil 211** (Logic), **Phil 309** (Hist of Ancient Phil), **Phil 310** (Hist of Modern Phil); and 15 additional upper-division credits in philosophy; plus 20 credits in humanities, social sciences, and sciences selected with the approval of the head of department to complete the total of 47 credits.

PHYSICS (B.S.)

General requirements, plus:

Course	Credits
Chem 103 Intro to Chem, or Chem 111 Prin of Chemistry	4-5
Chem 112 Inorg Ch & Qual Anal, or Chem 114 Gen Chemistry	4-5
Math 180, 190, 200 Anal Geom & Calc I, II, III	11
Phys 210-211-212 Engr Physics	9
Phys 321-322 Analytical Mech	6
Phys 341-342 Electr & Magnetism	6
Phys 360 Intro to Modern Phys	3
Phys 499 Research	1
Physics laboratory courses (upper-division)	3
Physics non-lab courses (upper-division, excluding Phys 304 and 314)	9
Mathematics (upper-division)	6

Students with superior preparation are reminded that they may challenge any undergraduate course or prerequisite. Contact physics office for details.

PHYSICS (B.Phys.)

Course	Credits
Chem 103 Intro to Chem, or Chem 111 Prin of Chemistry	4-5
Chem 112 Inorg Ch & Qual Anal, or Chem 114 Gen Chemistry	4-5
Math 180, 190, 200 Anal Geom & Calc I, II, III	11
Phys 210-211-212 Engr Phys	9
Phys 321-322 Analytical Mech	6
Phys 341-342 Electr & Magnetism	6
Phys 351 Elem Quantum Mech	3
Phys 360 Intro to Modern Phys	3
Phys 411 Physical Instr	3
Phys 431 Therm & Kinetic Theory	3
Phys 443 Optics	4
Phys 499 Research	1
Physics courses (upper-division, excluding Phys 304 and 314)	3
Mathematics (upper-division)	11

Candidates for the degree of Bachelor of Physics must complete Eng 101-102, English Composition; one physical education activity course each semester during the freshman and sophomore years; 6 credits in social sciences (anthropology, economics, history, philosophy, political science, or sociology); and the equivalent of one year of a modern foreign language (French, German, Italian, or Russian).

Students with superior preparation are reminded that they may challenge any undergraduate course or prerequisite. Contact physics office for details.

POLITICAL SCIENCE (B.A.)

General requirements, plus **PolSc 105** (Elem of Pol Sc), and 6 additional lower-division credits in political science; 6 credits in introductory courses in other social sciences; **Phil 309-310** (Hist of Phil); **PolSc 426** (Pol Thought); and 14 additional upper-division credits in political science; plus 17 credits in related fields to complete to total of 55 credits. The choice of specific courses in the above groups must be approved by the head of department. (Students who have earned a grade of C or better in high school civics should not register for **PolSc 101**.)

PRE-DENTAL STUDIES (Two-Year Program)

Students planning on attempting admission to a college of dentistry after completing the minimum of two years of college pre-dental education should follow the schedule of courses listed below. (Students not having high school chemistry take Chem 103 in place of Chem 111. Women students enrolled in this program need not take PE 101, Healthful Living.)

Freshman Year Course	Credits	
	1st	2nd
Chem 111 Prin of Chemistry	4	-
Chem 112 Inorg Ch & Q Anal	-	5
Eng 101-102 English Comp	3	3
Social Science	3	3
Biol 201 Intro to Life Sc	-	4
Math 140 College Algebra	3	-
Math 141 Anal Trig	2	-
Phys Ed Activities	½-1	½-1
Electives	0-½	0-½
	16	16

Sophomore Year Course	Credits	
	1st	2nd
Foreign Language	4	4
Chem 277 Org Chem I	3	-
Chem 278 Org Chem I—Lab	1	-
Chem 372 Org Chem II	-	3
Chem 376 Org Chem II—Lab	-	2
Biol 202 Gen Zoology	4	-
Phys 113-114 Gen Physics	4	4
Phys Ed Activities	½-1	½-1
Elective	-	2-2½
	16 ½-17	16

PRE-DENTAL STUDIES (B.S.Pre-Dent.)

Students in the four-year pre-dental program satisfy the requirements of the pre-medical curriculum (see below), except that the senior-year option I for pre-dental students reads as follows: *Option I* — 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. Women students enrolled in this curriculum need not take PE 101, Healthful Living.

Where electives are specified in the freshman, sophomore, and junior years, the following are suggested: Math 180, 190, 200 (Analytic Geometry & Calculus I, II, III), and Phys 210 (Engineering Physics).

Freshman Year Course	Credits	
	1st	2nd
Chem 111 Prin of Chem	4	-
Chem 112 Inorg Ch & Q Anal	-	5
Eng 101-102 English Comp	3	3
Social Science	3	-
Math 140 College Algebra	3	-
Math 141 Anal Trig	2	-
or		
Math 111-112 Fund of Math	(4)	(4)
Biol 201 Intro to Life Sc	-	4
Phys Ed Activities	½-1	½-1
Electives	0-1 ½	0-3 ½
	16	16-17

Sophomore Year Course	Credits	
	1st	2nd
Chem 253 Quant Analysis	5	-
Chem 277 Org Chem I	-	3
Chem 278 Org Chem I—Lab	-	1
Biol 202 Gen Zoology	4	-
Zool 324 Comp Vert Anat	-	4
Foreign Language	4	4
Phys Ed Activities	½-1	½-1
Electives	2-2 ½	3-3 ½
	16	16

(Continued on next page)

Junior Year Course	Credits	
	1st	2nd
Chem 372 Org Chem II	3	-
Chem 376 Org Chem II — Lab	2	-
Foreign Language	3-4	3-4
Phys 113-114 Gen Phys. <i>or</i>	4	4
Phys 211-212 Engr Phys	(3)	(3)
Zool 323 Comp Vert Embry	4	-
Social Science	-	3
Electives	0-1	5-7
	16-17	16

Senior Year

Completion of either of the options below:

Option I — Completion of the first year of medical study at an approved college of medicine.

Option II — Completion of sufficient credits to total 128, including at least 36 credits in courses numbered 300 or above, and at least 12 of these upper-division credits must be in the social studies and/or humanities. One course in mathematics or statistics beyond Math 111-112 or 140-141. Suggested senior-year electives: Biol 351 or PISc 314; Chem 305-306, and 307-308 or 302-303; Chem 481-482 or 480; Zool 481 or 488 or 489 or 315; Zool 416.

PRE-NURSING STUDIES

Admission to a school of nursing involves meeting satisfactorily its entrance requirements: acceptable scholastic records or a satisfactory score on the nursing admission test, and possession of personal qualifications essential for effective nursing. Requirements of the institution to which the 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. Women students enrolled in pre-nursing need not take PE 101, Healthful Living.

ONE-YEAR AND ONE SUMMER PROGRAM

Freshman Year Course	Credits	
	1st	2nd
Bact 250 Gen Bacteriology	-	4
Chem 103 Intro to Chem, <i>or</i>	-	-
Chem 111 Prin of Chem	4-5	-
Chem 114 Gen Chem, <i>or</i> Chem	-	4
275-276 Carb Comp	-	4
Eng 101-102 English Comp	3	3
HEc 270 Nutrition	-	3
Humanities	2	-
Phys Ed Activities	1	1
PE 288 First Aid	-	2
Sp 131 Fund of Speech	2	-
Soc 110 Intro to Soc	3	-
	15-16	17

Summer School

Course	Credits
Biol 100 Gen Biology	4
Psych 100 Intro to Psych	3

TWO-YEAR PROGRAM

Freshman Year

Course	Credits	
	1st	2nd
Biol 100 Gen Biology	-	4
Chem 103 Intro to Chem, <i>or</i>	-	-
Chem 111 Prin of Chem	4-5	-
Chem 114 Gen Chem <i>or</i> Chem	-	4
275-276 Carbon Compounds	-	4
Eng 101-102 English Comp	3	3
HEc 270 Nutrition	-	3
Humanities	2	-
Phys Ed Activities	1	1
Sp 131 Fund of Speech	2	-
Soc 110 Intro to Soc	3	-
	15-16	15

Sophomore Year

Course	Credits	
	1st	2nd
Bact 250 Gen Bacteriology	4	-
Psych 100 Intro to Psych	3	-
Psych 206 Develop Psych	-	3
*HEc 340 Family Relations	2	-
*HEc 334 Child Development	-	3
Humanities	3	6
Zool 118 Intro Human Phys	-	3
Zool 127 Intro Human Anat	3	-
Phys Ed Activities	1	1
	16	16

(A total of 21 credits in humanities and social science is required. At least 6 credits must be earned in each field.)

PRE-PHYSICAL THERAPY (B.S.)

Freshman Year

Course	Credits	
	1st	2nd
Biol 210 Intro to Life Sc	4	-
Biol 202 Gen Zoology	-	4
Chem 103 Intro to Chem, <i>or</i>	-	-
Chem 111 Prin of Chem	4-5	-
Chem 114 Gen Chemistry	-	4
Eng 101-102 English Comp	3	3
Math 140 College Alg	-	3
Math 141 Anal Trig	-	2
Psych 100 Intro to Psych	3	-
PE 101 Healthf Liv (Women)	(2)	-
Phys Ed Activities	½-1	½-1
Elective	0-1 ½	0-½
	16-18	17

Sophomore Year

Course	Credits	
	1st	2nd
Psych 205-206 Devel Psych	3	3
Phys 113-114 Gen Phys	4	4
PE 111 Fund of Movement	2	-
Zool 118 Intro Human Anat	-	3
Zool 127 Intro Human Phys	3	-
Foreign Language Elective	4	4
Phys Ed Activities	½-1	½-1
Elective	0-½	0-½
	17	15

(Continued on next page)

*HEc 340 and 334 are highly recommended but not required. Students who have completed the 21 hours of humanities and social sciences should then select HEc 340 and/or 334 as desirable electives.

PRE-PHYSICAL THERAPY (Cont.)

Junior Year Course	Credits	
	1st	2nd
Psych 311 Ab Psych, or Psych 420 Prin & Prac in Guid	3	-
Psych 461 Psych of Pers	3	-
Zool 324 Comp Vert Anal	-	4
Zool 324 Comp Vert Anat	-	4
Social Science Electives	3	3
Humanities Elective	3	-
*Foreign Language	4	4
Electives	-	5
	16	16

Senior Year Course	Credits	
	1st	2nd
PE 252 Elem Sch Phys Ed	-	2
PE 419 Hum Kinesiology	3	-
PE 424 Adap & Corr Phys Ed	-	2
Psych 301 Excep Indiv	-	3
Humanities Electives	2	2
Electives	11*	7*
	16	16

*Electives to bring the total number of credits to 128 for the degree. Electives may be substituted for the foreign language requirement if the L & S general requirement in foreign languages has been met.

PSYCHOLOGY (B.S.)

General requirements, plus: Course	Credits
Math 111-112 Fund of Math, or Math 140 Coll Alg, and/or Math 141 Anal Trig, and/or Math 180 Anal Geom & Calc I	8-9
Biol 201 Intro to Life Sc	4
Biol 202 Gen Zoology	4
Psych 100 Intro to Psych	3
Psych 201-202 Gen Exper Psych	8
Psych 317 Statistics	3
Psych 490 Learning	3
Psych 498 Hist & Systems	3
Psych 305 Compar Psych, or Psych 341 Phys Psych, or Psych 455 Psych of Motivation	3
Psych 311 Abnorm Psych, or Psych 320 Soc Psych, or Psych 461 Psych of Personality	3

*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. It is recommended that credits in upper-division courses in the major be kept reasonably close to the college minimum of twenty.

RADIO-TELEVISION (B.A.)

General requirements, plus: Course	Credits
Comm 120 Mass Comm in Free Soc	2
Rad-TV 141 Broadcasting	3
Rad-TV 253 Rec & Broadcasting	3
Rad-TV 282 Intro to TV Prod	3
Rad-TV 287 Station Writing	3
Rad-TV 322 Ed Uses of Rad-TV	2
Rad-TV 488 Cinematography for TV	3

Rad-TV 491 Announcing II	2
Rad-TV 492 Adv TV Production	3
Rad-TV 493 Commercial Broadcstg	3
Rad-TV 494 Radio-TV News	3
Additional courses in Dept of Comm and or in dramatics	10
Plus the following courses in other departments:	
Advertising	2-3
Speech	2
Literature	6
Social Sciences	6
Education	3

SOCIOLOGY (B.A.)

General requirements, plus **Anthro 110** (Intro to Phys Anthro & Arch), **Anthro 120** (Intro to Soc Anthro), **Soc 110** (Intro to Soci), **Soc 130** (Soc Probl), **Soc 411** (Contemp Soci), and 17 additional credits in sociology numbered 300 or above, plus 20 credits in related fields, including one of the following **Hist 433-434** (Soc & Cult Hist of U.S.), **Hist 465-466** (Soc & Cult (Hist of Europe)), **Phil 309** (Hist of ancient Phil), **Phil 310** (Hist of Modern Phil), or **PolSc 426** (Pol Thought). The choice of specific courses in the above groups must receive the approval of the head of the Department of Sociology/Anthropology. Recommended preparation; at least 6 credits from introductory courses in any two other social sciences.

Social Work

Majors wishing to prepare for a career in the field of social work should include also the following recommended courses: **Bact 254** (Pub Health & Hyg); **Psych 301** (The Excep Indiv), **Psych 311** (Elem Abnorm Psych), **Psych 461** (Psych of Person); **Soc 240** (Intro to Soc Welf), **Soc 241** (The Org of Soc Serv), **Soc 320** (The Family), **Soc 330** (Juvenile Delinq) or **Soc 331** (Criminology), **Soc 440** (Meth — Tech of Soc Work), **Soc 441** (Spec Study & Field Observ) plus 3 credits in lower-division courses in each of the following fields: economics, history, philosophy, political science, and psychology.

SPANISH (B.A.)

General requirements, plus **FL 181-182** (Elem Span) and **FL 281-282** (Interm Span), or equivalent; 20 additional credits in Spanish; a reading knowledge of another foreign language; and 20 credits in related fields approved by the head of the Department of Foreign Languages.

SPEECH (B.A.)

General requirements, plus: Course	Credits
Sp 131-132 Fund of Speech	4
Sp 109 Intercoll Forensics, or Sp 162 Parl Law & Procedures	1-2
Sp 351-352 Adv. Speaking	4
Sp 361 Disc & Conference Meth	2
Sp 362 Speech & Sp Improvement	2
Sp 385 Voice & Sp Improvement	2
Sp 386 Speech Correction	2
Sp 391 Propaganda & Pub Opinion	2
Sp 492 American Public Address	2
Additional credits in upper-division courses in speech, and 20 credits in related fields	

ZOOLOGY (B.S.)

Freshman Year

Course	Credits	
	1st	2nd
Biol 201 Intro to Life Sc	-	4
Chem 111 Prin of Chemistry	4	1
Chem 112 Inorg Ch & Q Anal	-	5
Math 140 College Alg	3	-
Math 141 Anal Trig	2	-
Math 180 Anal Geom & Calc I	-	5
Eng 101-102 English Comp	3	3
PE 101 Healthful Liv (Women)	(2)	-
Phys Ed Activities	½-1	½-1
Social Science Elective	3	-
	15 ½-18	17 ½-18

Sophomore Year

Course	Credits	
	1st	2nd
Biol 202 Gen Zoology	4	-
Biol 203 Gen Botany	-	4
Chem 253 Quant Analysis	5	-
Chem 277, 278 Org Ch & Lab	-	4
Foreign Language Elective	4	4
Humanities Elective	3	-
Social Science Elective	-	3
Phys Ed Activities	½-1	½-1
	16 ½-17	15 ½-16

Junior Year

Course	Credits	
	1st	2nd
Biol 351-352 Gen Genet & Lab	-	4
Biol 331 Gen Ecology	-	3
Chem 372, 374 Org Ch & Lab	4	-
Foreign Language Elective	4	4
Humanities Electives	2	2
Social Science Elective	3	-
*Undesignated Electives	4	4
	17	17

Senior Year

Course	Credits	
	1st	2nd
Biol 361 Biological Lit	1	-
Phys 113-114 Gen Physics	4	4
Zool 315 Gen Physiology	4	-
Zool 323 Comp Vert Embry	4	1
*Undesignated Electives	4	4-8
	17	8-12

*At least 16 hours of the total electives must be in upper-division courses. At least 4 hours of these must be in the major as well as upper-division level (entomology and biology upper-division courses may be counted as major credit in zoology).



COLLEGE OF MINES

R. R. Reid (Dean), John G. Bond (Secretary of the College Faculty).

Mining Engineering
Metallurgical Engineering

Geography

Geology
Geological Engineering

THE UNIVERSITY OF IDAHO, situated in one of the foremost mining regions of the world, appropriately maintains courses in mineral industries technology and in the earth sciences. To enable this work to be carried on effectively, a College of Mines was created in 1917 as an administrative unit of the University, and its scope was indicated as follows:

Within this College will be included the work in mining proper, in metallurgy, and in geology, and it shall include the exploitation of the non-metallic minerals (except road-making materials) as well as that of the precious and useful metals.

Accordingly, the College of Mines offers curricula leading to the baccalaureate degree in mining engineering, metallurgical engineering, geological engineering, geology, and geography. The Graduate School of the University offers advanced work leading to the degree of Master of Science in these areas and also in hydrology. The degree of Master of Arts in Teaching Geography is also offered. Doctoral study leading to the degree of Doctor of Philosophy is offered in geology. Consult the graduate bulletin for the special requirements for the professional degrees of Engineer of Mines, Metallurgical Engineer, and Geological Engineer.

ADVANTAGES OF LOCATION

The campus of the University of Idaho at Moscow is ideally located in relation to the mineral industry of the Northwest. Large commercial deposits of many metallic and nonmetallic minerals are found in nearby areas which serve as "laboratories" for our students; more than 40 different mineral commodities are produced from Idaho mines and quarries. The great lead-zinc-silver deposit of Coeur d'Alene district is one of the seven or eight "billion dollar" districts in the world — districts which have produced metal valued in excess of one billion dollars. Two other of these billion-dollar giants — Butte, Montana and Bingham, Utah — are in nearby states.

The famous Sullivan lead-zinc deposit in British Columbia is just north of the Idaho boundary, and there are important uranium and gold deposits in northeastern Washington. East-central Idaho has the largest deposit of cobalt in the United States. Columbium, tantalum, yttrium, zirconium, hafnium, uranium, thorium, titanium, and rare earths have been produced from placer sands. In recent years Idaho has been a large producer of antimony and tungsten. Lemhi County has large reserves of thorium ores.

Two nonmetallic mineral resources in Idaho warrant special mention. The phosphate deposits of southern Idaho are the largest in the world, and they are being exploited on a large scale. In Latah County, within about 15 miles of Moscow, there are extensive clay beds, which are now being mined. These clays have been produced for their "conventional" uses — paper filler and coating filters, and ceramics.

In addition to phosphate and clay, there are many other important nonmetallic deposits in Idaho and its neighboring states and provinces — magnesite in northeastern Washington; coal in Montana, Utah and Wyoming; and petroleum in Alberta, Montana, and Wyoming.

Idaho is generously endowed with water although there are many problems related to development and distribution. The major dams in the Columbia River system are within easy reach of the University for study in hydrology and geological engineering. The Snake River Plain of south Idaho offers a natural laboratory for the study of surface and ground-water problems. In addition, many small basins in Idaho are available for the study of water resources problems.

Geology

Idaho presents excellent opportunities for general investigations and research. Portions of four physiographic provinces, with their particular structural features, are included within the State. The sedimentary rock section in Idaho ranges from Precambrian to Recent. Fossil plants or animals representing all geologic periods can be found within the state and in contiguous regions. The crystalline rocks are unusually varied and include metamorphic rocks; the great Idaho batholith; major dikes and sills; middle tertiary and more recent lava flows that cover thousands of square miles; and recently active volcanoes. There are few areas in the world where the relationship of ore deposition to structure and igneous activity can be studied to better advantage.

Geography

The University provides the only geography degree program in the State of Idaho. Its scope covers the entire area of man-land-resource relations, spatial interaction and distribution, training student for work in industry, government employment, teaching and research. There are excellent regional opportunities for field research in land use, and economic development, applied climatology, transportation, and rural-urban studies. Other major aspects of geography available include quantitative analysis of diverse geographic problems facilitated by computer technology. There is strong emphasis on various aspects of cartography and photo interpretation. The geography program is closely integrated with a number of other departments, and the curriculum is designed for maximum flexibility. This permits the design of special program to fit individual student needs and interests.

Mining

Students have opportunities to observe all types of mining operations and see the machinery and equipment employed in the mining industry — in some of the smaller mines, as well as in the large mines of the Coeur d'Alene and Butte districts. Not only are these visited on field trips, but many students find summer employment in the mines. Research activities in mining companies, local governmental organizations and the University provide for detailed study in a wide variety of interests.

Metallurgy

There are many large metallurgical plants within relatively short distances of Moscow; concentrating mills, lead smelter, and zinc plant at Kellogg, Idaho; copper smelter and zinc plant at Anaconda, Montana; lead smelter and zinc plant at Trail, B.C.; and an aluminum smelter and rolling mill in Spokane, Washington. These, too, often provide the students with opportunities for summer work.

EQUIPMENT AND FACILITIES

The College of Mines equipment is conveniently described under the four headings of mining engineering; metallurgy; geology and geological engineering;

and geography. In addition to the facilities here mentioned, the student has the use of the well-equipped laboratories of the departments of Mechanical, Electrical, and Civil Engineering, and of Chemistry and Physics, and enjoys many cultural benefits related to the University environment.

Building

The College of Mines is housed in the Mines Building completed in the summer of 1961. Half of the money for this modern 3-story structure was contributed by companies and individuals in the mining industry; the other half was appropriated by the Idaho Legislature on a matching basis.

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 practice 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 mineralogy 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; 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 section, polished sections, topographic and geologic maps.

Equipment used in advanced courses includes: rock sawing and polishing facilities, binocular microscopes, reflection and polarizing microscopes, photomicrographic apparatus; X-ray diffraction and fluorescence equipment, and an atomic absorption spectrophotometer. Also available are 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, photo-geologic 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 50,000 maps, and the depart-

ment has extensive holdings of maps and air photos. The geography staff and students maintain a multi-instrument complex of 8 meteorological stations. A computer and calculator are also available for class use. Extensive modern cartographic equipment, drafting room, and darkroom are housed in the department, and students are taught how to interpret photographs, compile maps, model building, air brush work, and darkroom techniques.

Field Trips

Appropriate field trips are arranged and conducted under instructional supervision. The availability of areas of unusual geologic interest, mines, and metallurgical plants provides convenient opportunity for studies in the field to supplement class and laboratory work.

Idaho Mining Research Bureau

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 department for investigation. The staff provides the dual function of applied research and speciality 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.

Other Organizations

The Idaho Bureau of Mines and Geology has its headquarters and research facilities on the University of Idaho campus, and works in close conjunction with the College of Mines. Bureau projects often provide employment for students enrolled in the College. There are field and research branches of both the U.S. Geological Survey and the U.S. Bureau of Mines in nearby Spokane, Washington. There are chapters of American Institute of Mining and Metallurgy Engineers and American Society of Metals in Spokane, and students in the College of Mines are encouraged to become student members of these societies, through the student chapter on campus.

Museum

The Idaho College of Mines has a unique art collection — the Perchel collection which was given on a permanent loan basis 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.

GENERAL INFORMATION

Scholarships, Grants-in-Aid, and Loan Funds

Students having a high academic standing at high school or while in college should refer to "Scholarships" in Part I of this catalog. The Idaho Mining Association scholarships and the Idaho Mining Memorial Scholarships are open exclusively to freshmen entering the College of Mines. The Hecla-Bunker Hill, A. E. Larson (Sunshine Mining Co.) and ASARCO (American Smelting and Refining Co.) scholarships are available to College of Mines students. The College of Mines also administers the J. R. Simplot grant-in-aid program to needy students. The Fahrenwald scholarships and Staley scholarships in honor of emeritus faculty are also available. Two special loan funds (the Laney fund and the J. J. Day fund) are restricted to College of Mines students. For graduate students there are

several institutional assistantships and research fellowships and the A. H. Featherstone graduate scholarship.

Inquiries should be directed to Chairman, Scholarship and Awards Committee, College of Mines.

Graduate Student Employment and Financial Support

Instructional assistantships are available in geology, geography, mining engineering, and metallurgical engineering. Research fellowships are available under the support of the Idaho Bureau of Mines and Geology. Graduate scholarships are supported by the A. H. Featherstone Fund, the National Science Foundation, the National Defense Education Act, the National Aeronautics and Space Agency, and the U.S. Bureau of Mines.

The Idaho Bureau of Mines and Geology supports, as funds permit, graduate research in geology, mining engineering, and metallurgical engineering according to the needs of the state. Other support for graduate students is available in connection with research grants made to the faculty by the University of Idaho Research Council, the Idaho Bureau of Mines and Geology, Idaho Mining Research Bureau, private industry, and various state and federal governmental agencies.

Summer Employment

The dean and faculty of the College aid students in securing employment in the mineral industries and in geological field work during summer vacations. Employment is sometimes available during Christmas and spring vacations.

Field Camps

The College of Mines periodically operates a Geology Summer Camp for students in geology and geological engineering, and a Mine Surveying Summer Camp for students in mining engineering.

The Mine Surveying Summer Camp is normally held at an operating mine. The course lasts three weeks, with the emphasis being on surveying a portion of an underground mine. Part of the time is spent in detailed underground and geologic mapping.

The camp programs are normally taken during the summer between the junior and senior years. The programs are designed to give the student the opportunity to apply the knowledge acquired in classroom and laboratory to actual field problems in situations approximating the conditions he will meet in his professional career. The summer field camp may be taken in conjunction with programs from other universities.

GENERAL REQUIREMENTS AND UNDERGRADUATE CURRICULA

University Requirements

See general regulation "J" in Part I for the all-University requirements for graduation. As a part of these broad requirements, students must complete Eng 101-102, English Composition, and one physical education activity course each semester for four semesters.

Electives

A list of acceptable electives may be consulted in the office of each head of department and major professor in the College. Electives must be approved by the head of department or the major professor involved.

Curricula

Each of the following programs of studies includes the departmental requirements beyond the general requirements set forth above.

GEOGRAPHY (B.S.Geog.)

Course	Credits
Anthro 110 Intro Phys Anthro & Archeology, or Anthro 120 Intro to Social Anthro	3
Econ 251-252 Prin of Econ	6
Eng 317 Tech & Engr Report Wr	3
Geog 103 Phys Geog	4
Geog 112 Econ Geog	3
Geog 251 Intro Cartography	3
Geog 252 Cultural Geog	3
Geog 254 World Regional Geog	2
Geog 401 Weather & Climate	3
Geog 424 Intern Econ Geog	3
Geog 437 Conserv of Nat Res	3
Geog 470 Urban Geog	3
Geog 480 Pol Geog	3
Geog 495 Proseminar	2
Geol 109 Phys Geol	4
Geol 401 Geomorphology	3
Math 111-112 Fund of Math or Math 140-141 Coll Alg & Anal Trig	5-8
Phys 111 Elem Phys, or Phys 113 General Physics	3-4
Psych 317 Intro to Stat, or Ag 406 Stat Res Meth, or Bus 231 Statistics	3-4
Plus 8 credits in biology, botany, chemistry, or zoology, the equivalent of one year of college-level study of a foreign language, 6 cr in geography electives, and 31-34 cr in approved electives.	

GEOGRAPHY (B.A.)

See this curriculum in the College of Letters and Science section.

GEOLOGY (B.S.Geol.)

Required: A total of 134 credits, including the general requirements, and:

Course	Credits
Chem 111 Prin of Chem	4
Chem 112 Inorg Ch & Quant Anal	5
Geog 251 Intro Cartography	3
Geol 109 Phys Geol	4
Geol 110 Historical Geol	4
Geol 111 Ancient Life	4
Geol 202 Minerals and Rocks	3
Geol 401 Geomorphology	3
Geol 413 Sedimentology	2
Geol 414 Stratigraphy	2
Geol 421 Structural Geol	3
Geol 431 Field Geol & Report Wr	6
Geol 497 Proseminar	1
Math 140-141 Coll Alg & Anal Trig	5
Math 180, 190, 200 Anal Geom & Calculus I, II, III	11
Met 201 Elem of Materials Sc	2
Met 305 Elem of Crystallography	2
Phys 113-114 Gen Phys, or Phys 210-211-212 Engr Phys	8-9
Plus 7 credits in biological sci; the equivalent of one year of college-level study of a foreign lang; 12 credits in humanities and/or social science electives; and 24-25 credits in other approved electives.	

GEOLOGY: PALEONTOLOGY OPTION (B.S.Geol.)

Required: a total of 134 credits, including the general requirements, and:

Course	Credits
Chem 111 Prin of Chem	4
Chem 112 Inorg Ch & Quant Anal	5
Geog 251 Intro Cartography	3
Geol 109 Phys Geol	4
Geol 110 Historical Geol	4
Geol 111 Ancient Life	4
Geol 202 Minerals and Rocks	3
Geol 401 Geomorphology	3
Geol 412 Invertebrate Paleontology or Geol 453 Adv Paleontology	3
Geol 413 Sedimentology	2
Geol 414 Stratigraphy	2
Geol 421 Structural Geol	3
Geol 431 Field Geol & Report Wr	6
Geol 497 Proseminar	1
Math 140-141 Coll Alg & Anal Trig	5
Math 180 Anal Geom & Calc I	4
Met 201 Elem of Materials Sc	2
Plus 20 credits in biological sciences; the equivalent of one year of college-level study of a foreign language; 12 credits in humanities and/or social science electives; and 21 credits in other approved electives.	

GEOLOGICAL ENGINEERING (B.S.Geol.E.)

Required: A total of 134 credits, including the general requirements and:

Course	Credits
Chem 111 Prin of Chem	4
Chem 112 Inorg Chem & Quant Anal	5
CE 111 Engr Measurements	2
Econ 251-252 Prin of Econ	6
EE 200 Systems and Circuits	3
Engr 101 Engineering Graphics	2
Engr 106 Survey of Engineering	2
Engr 131 Digital Computer Prog	1-2
ES 210 Mechanics I (Statics)	2
ES 220 Mechanics II (Dynamics)	2
ES 320 Fluid Mechanics	3
ES 321 Thermodyn & Heat Transfer	3
ES 340 Mechanics of Materials	3
Geol 109 Physical Geology	4
Geol 110 Historical Geology	4
Geol 202 Minerals and Rocks	3
Geol 413 Sedimentology	2
Geol 421 Structural Geology	3
Geol 431 Field Geol & Report Wr	6
Geol 441 Engineering Geology	3
Geol 497 Proseminar	1
Math 140-141 Coll Alg & Anal Trig	5
Math 180, 190, 200 Anal Geom & Calc I, II, III	11
Math 310 Ordinary Diff Equations	3
Met 201 Elem of Materials Sc	2
Phys 210-211-212 Engr Physics	9
Plus 11 credits in humanities and/or social science electives and 19 credits in other approved electives (see notes below).	

Recommended Electives

- Students wishing to specialize in mineral exploration will add **Geol 458** (Mineral Deposits), **Geol 460** (Exploration Geology), **Geol 485** (Geochemical Exploration), and **Min 401** (Rock Mechanics I).
- Students wishing to specialize in construction will

(Continued on next page)

GEOLOGICAL ENGINEERING (Cont.)

add **Geol 445** (Geological Engr Design), **Min 401** (Rock Mechanics I), and **CE 360** (Soil Mech).

3. Students wishing to specialize in hydrogeology will add **Geol 445** (Geological Engr Design), **Geol 447** (Ground Water), **AgE 351** (Hydrology), and **CE 360** (Soil Mech).

METALLURGICAL ENGINEERING (B.S.Met.E.)

Required: A total of 136 credits, including the general requirements and:

Course	Credits
ChE 323 Mat & Energy Balances	2
Chem 111 Prin of Chem	4
Chem 112 Inorg Chem & Qual Anal <i>or</i> Chem 114 General Chemistry	4-5
Chem 305-306 Physical Chem	6
EE 200 Systems and Circuits	3
EE 314 Electr & Control Systems	2
EE 315 Electronics Laboratory	1
Engr 101 Engr Graphics	2
Engr 106 Survey of Engr	2
Engr 131 Digital Computer Progr	1-2
ES 210 Mechanics I (Statics)	2
ES 220 Mechanics II (Dynamics)	2
ES 320 Fluid Mechanics	3
ES 321 Thermody & Heat Transfer	3
ES 340 Mechanics of Materials	3
Eng 317 Tech & Engr Report Wr	3
Geol 109 Physical Geology	4
Math 140-141 Coll Alg & Anal Trig	5
Math 180, 190, 200 Anal Geometry & Calculus I, II, III	11
Math 310 Ordinary Diff Equations, <i>or</i> another approved upper-division mathematics course	3
Met 102 Materials & Their Mfg	1
Met 201 Elem of Materials Sc	2
Met 203 Metallography	1
Met 305 Elem of Crystallography	2
Met 308 Intro Metallurg Thermo	2
Met 401 Ore Dressing	3
Met 403 Intro Produc Metallurgy	3
Met 410 Metallurgical Laboratory	2
Met 412 Mechanical Metallurgy	2
Met 413 Physical Metallurgy	3
Met 414 Materials Engineering	2

Min 201 Elements of Mining 2
 Phys 210-211-212 Engr Physics 9
 Plus 24-26 credits in electives, of which at least 17
 credits must be from social sciences, economics, hu-
 manities, psychology, art, or music.

MINING ENGINEERING (B.S.Min.E.)

Required: A total of 136 credits, including the general requirements and:

Course	Credits
Chem 111 Prin of Chem	4
Chem 114 Gen Chem	4
CE 111 Engr Measurements	2
EE 200 Systems and Circuits	3
EE 314 Electr & Control Systems, <i>or</i> EE 323 Basic Electr Machinery	2
Engr 101 Engineering Graphics	2
Engr 106 Survey of Engineering	2
Engr 131 Digital Computer Progr	2
ES 210 Mechanics I (Statics)	2
ES 220 Mechanics II (Dynamics)	2
ES 320 Fluid Mechanics	3
ES 321 Thermody & Heat Transfer	3
ES 340 Mechanics of Materials	3
Eng 317 Tech & Engr Report Wr, <i>or</i> Eng 313 Business Writing	3
Geol 109 Physical Geology	4
Geol 202 Minerals and Rocks	3
Geol 421 Structural Geology	3
Math 140-141 Coll Alg & Anal Trig	5
Math 180, 190, 200 Anal Geometry & Calculus I, II, III	11
Math 310 Ordinary Diff Equations, <i>or</i> another approved upper-division mathematics course	3
Met 201 Elem of Materials Sc	2
Met 401 Ore Dressing	3
Met 410 Metallurgical Laboratory	2
Min 201 Elements of Mining	2
Min 301 Mining Engineering I	2
Min 350 Mineral Economics	3
Min 371 Mining Engineering II	2
Min 372 Mine Ventilation	3
Min 390 Mine Surveying Summer Camp	3
Min 401 Rock Mechanics I	3
Min 450-451 Mine Planning I-II	6
Min 490 Seminar	1
Phys 210-211-212 Engr Physics	9
Plus 21 credits in electives, of which at least 17 credits must be from social sciences, economics, humanities, psychology, art, or music.	

GRADUATE SCHOOL

Melbourne L. Jackson (Dean), Edgar H. Grahn (Assistant Dean), Bruce Higgins (Staff Assistant)

THE GRADUATE SCHOOL was formally organized in 1925 but the University of Idaho has offered advanced degrees for over seventy years with the first master's degree awarded in 1897. The Graduate School embraces seven colleges and nearly 50 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.

GRADUATE STUDIES

Graduate study presents an opportunity for advanced students to become closely associated with mature scholars and represents a difference in philosophy from undergraduate work. A student normally works in a special field of knowledge rather than in broad fields; he is more concerned with an analysis of information rather than using information as it exists; he is also interested in the development of new knowledge and an assessment of existing knowledge. The awarding of a degree signifies the completion of the objectives of a specific plan of study. This plan is developed for each individual student and is based both on future study objectives and on past study programs completed. A graduate student pursues his study on a more independent basis than he did in his undergraduate years. The graduate degree is more frequently characterized by a written presentation involving a review of existing knowledge, an analysis of past work, and perhaps some projection of knowledge. He does this by a plan of study including course work in his speciality and related fields and by research work forming an extension of the course work. In writing a thesis a student demonstrates proficiency in the ability to present a written analysis in clear and logical form. Some master's degrees do not involve a thesis and the analysis of knowledge is assessed by a written comprehensive examination or in some cases by a production of work in the field. It is expected that a student working for an advanced degree will have associations, through course and research work, with at least three members of the faculty offering advanced work for the master's degree and with a wider representation of disciplines and viewpoints for a doctoral degree.

DEGREE PROGRAMS

Degree programs are offered in over 65 areas for the master's degree and in 21 for the doctoral degree. Advanced degrees are listed in Part I. Specific degree offerings by department are given in the *Graduate School Bulletin* which also provides detailed information about the Graduate School, appointments, financial aids, library, research facilities and procedures. Further information is provided in the "Information Bulletin for Theses and Dissertations." Forms to assist students in recording their progress are supplied by the Graduate Division Office on request.

APPOINTMENTS AND FINANCIAL AIDS

In support of graduate study and research, the University of Idaho awards each year a number of assistantships and fellowships. In addition, awards are made through the Supplemental Graduate Support Program, through NDEA, NSF, NASA, NIH, and FWPCA, fellowship and traineeship programs, and by grants

from industrial companies. Many of these awards include allowances for fees or out-of-state tuition.

Fellowships and assistantships are open to those holding an undergraduate degree from any university or college of recognized standing and who have been admitted to the Graduate School. An inquiry for a position or award should be addressed to the head of the department in which the applicant plans to enroll for graduate study. Some appointments may carry a work requirement and qualifications required may vary. Those appointed to fellowships and assistantships supported by the University are advised that the awards are tenable only in the unit of the major field of study except where prior written exceptions are made. Also, annual leave is not available under academic year appointments but the student may be allowed the regular school vacation periods upon request to his department head through the major professor. Under twelve-month appointments a two-week vacation can normally be arranged upon request.

A holder of a fellowship, assistantship or other award must show satisfactory progress and meet all the academic requirements of the Graduate School in order to continue an appointment through a second semester.

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

The University of Idaho and Washington State University, to utilize unique areas of knowledge of each institution, have for some time operated a cooperative course program available only to graduate students. Courses available on either campus are identified in Part III and offerings are provided by the current time schedule.

National Reactor Testing Station

The University of Idaho conducts an off-campus graduate program at the NRTS at Idaho Falls, Idaho, in cooperation with the Idaho operations office of the Atomic Energy Commission. The program is administered through a resident director of the University. It is possible for students qualifying for this program to earn a master's degree in the physical sciences, mathematics, engineering or business. It is also possible for a student holding a master's degree to complete residence course requirements and examinations on-campus for the Ph.D. degree and to complete the research work for this degree at the NRTS site.

AWU Program

The University is a member of Associated Western Universities, which is a cooperative venture of certain institutions to make use of special facilities located in the area. Financial support is available for students and faculty to spend periods of time, up to one year, at a number of the laboratories of the Atomic Energy Commission to pursue research projects.

ADMISSION AND ENROLLMENT

Admission to the Graduate School is open to any student holding an undergraduate degree and presenting a scholastic record indicating probable success in graduate work. Admission is to a particular program and is only for study in that program. Application forms and supplementary information are provided by the Office of Admissions. The completed application and transcripts from all previous academic institutions attended are received by the Admissions Office and routed to the department of study for evaluation. A student may not be admitted without the recommendation of the department offering the major. The Graduate Office gives final approval to admission subject to the minimum requirements of the University and, where necessary, upon consideration of supporting information provided by the department. A department may set admission requirements above the minimums of the University as a whole.

Students wishing to enter the Graduate School should have submitted the application and have had transcripts sent directly from institutions attended to the Admissions Office several months prior to the date they wish to enter. Deadlines for acceptance of admission applications vary from year to year and may be ascertained by inquiry to the Admissions Office but are usually about one month prior to the opening of a term.

A student planning to apply for work leading to a Ph.D. or Ed.D. degree should write the department in which he wishes to major in advance of the submission of his application for admission to the Graduate School. Specific requirements for the major, examinations which may be required, and additional pertinent information will be provided by the department. The applicant should note that no student may officially enter upon a doctoral program until the "Notice of Intention to Work for a Doctoral Degree" form has been filed and approved. This is not usually completed until after the student has registered on campus. Applicants for doctoral programs must show evidence of superior scholastic ability.

An applicant, when admitted to the Graduate School, will be issued a letter of acceptance and specific instructions as to registration procedures. The registration packet should be obtained from the Graduate Office prior to conferring with the major professor or adviser.

A student is admitted for work in a specified major or program and may not change without acceptance by the department administering the new major. Such procedure is formalized by a change of curriculum card signed by the new department head, approved by the Graduate Office, and forwarded to the Registrar's Office.

The Graduate Record Examination (GRE) is not required for admission but is recommended by some departments; the College of Education requires results of the GRE before admission to candidacy and prefers it before initial registration. Students are invited to provide the results of the examination with their application form, if available, to facilitate evaluation and acceptance. Students applying for various Federal fellowships and traineeships are advised that, presently, the Graduate Record Examination is not required but such information may facilitate selection and an award. Students are asked to provide the results of the aptitude test and the advanced test for the area of study proposed. The GRE tests are given five times a year by this University through the Counseling Center.

Enrollment Categories

"A" Enrollment. This classification is for students seeking a graduate degree or sixth year certificate who meet the minimum grade point average (GPA) for all undergraduate work. Only students in this status may be admitted directly to candidacy for an advanced degree.

"B" Enrollment. This classification is for applicants to those departments which do not initially admit any beginning student to "A" status, or for applicants who do not meet minimum grade point requirements or who have substantial course deficiencies, but where evidence is offered that the applicant can likely maintain a 3.0 GPA in graduate work and earn an advanced degree. A student in "B" enrollment may request a change of status to "A" enrollment after having completed 15 or more credits of graduate work applicable toward a degree with a GPA of 3.0 or better. Those holding appointments as instructional or graduate assistants may request a change to "A" enrollment after having completed ten credits of appropriate course work with a GPA of 3.0 or better. A student not qualifying for "A" enrollment at the end of two semesters may be continued in "B" enrollment for an additional semester only upon review and recommendation of the department concerned.

Non-Degree Enrollment. This classification is for applicants not wishing to work for an advanced degree and students so enrolled may not register for research. A graduate student may be completing teacher certification requirements while, at the same time, completing some work toward an advanced degree. In some cases work taken may be offered for both purposes. Details concerning teacher certification requirements may be obtained from the appropriate department and college and students are encouraged to seek appointment of a regular adviser for this purpose.

Fifth Year Enrollment. This classification is for applicants wishing to work for a *planned* fifth year of teacher education. Students enrolled in this classification must have a baccalaureate degree from an accredited college and must have met minimum standard certification requirements of the State of Idaho. Students in this classification do not enroll in 500's series courses.

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. A course registration plan designating undergraduate and graduate courses is submitted with the application for admission on a form provided.

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; this end can also be accomplished by registration in a graduate course for undergraduate credit which is permitted highly qualified seniors.

Seniors in 500's Courses

A senior with at least a 3.0 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 courses offered with Washington State University.

Returning Students

Students who have not maintained continuous enrollment, excluding the summer session between the academic year or successive summer sessions, need to complete a form for the Registrar stating activities pursued in the interim and provide transcripts of any additional institutions attended or graduate work taken. If the period of delay has been extensive, the form will be routed to the department and the Graduate Office for an indication of whether the student is invited to return to complete his work. A student engaged in off-campus academic work is required to register for a minimum number of credits to indicate continuous progress toward the degree. Students who attend successive summer sessions are considered to be in continuous enrollment but need to file a statement with the Registrar prior to registration each summer and to request a "permit to register." Students not in continuous enrollment are advised that they must file the "Application for Permit to Register" form with the Registrar well in advance of the semester they wish to register.

GENERAL GRADUATE SCHOOL REGULATIONS

Each student working for an advanced degree is assigned a major professor and a supervisory committee. The professor and the committee evaluate the student's prior qualifications, approve the study plan, and conduct the various examinations pertinent to the degree sought. Non degree students may request an adviser to provide guidance toward other study objectives. Where study objectives and or research are interdisciplinary in nature co-chairmen may be ap-

pointed from the departments involved. The major professor and a research professor may divide responsibilities.

Any change in a study program is recommended by the major professor for approval by the Graduate Office. Such changes should be requested prior to registration for courses involved.

Students and major professors are advised that the right to petition exists to waive or modify any University regulation. However, favorable action can be expected only when circumstances and the presentation clearly justify an exception. Precedents are not set by previous actions and may not form the basis of a petition; rather, it is the situation concerning the individual involved which is given consideration. Most petitions concerning graduate students and graduate school regulations are presented in duplicate to the Graduate Council on a blue form provided. For cases involving general University regulations the petition is presented to the Administrative Council in duplicate on a yellow form. In either case the petition is presented by the graduate dean.

Registration Requirements

The University requires that graduate students engaged in any activity requiring faculty time and consultation, or the use of any University facilities, register for an amount of credit appropriate to the activity involved. This is in lieu of a policy requiring sequential enrollment at a fixed fee each semester from first registration until the advanced course is completed.

Students engaged in any phase of research such as developing or collecting data or writing the thesis or dissertation, must register for such work in an amount reflecting the effort required whether or not the minimum research requirement stated on the study plan has been completed. Attention is called to the fact that registration for research performed off-campus under the supervision of a faculty member need not be in-absentia. Approval to take a final examination will not be granted to a student who is not registered and who has not met either of the following conditions: 1) A student who, during the semester, takes only the comprehensive examination for a non-thesis degree, or 2) a student who was registered the previous semester and who, during that semester, received committee authorization by signatures on the rough draft to prepare the final draft of the thesis or dissertation and who takes only the final oral examination.

Study Loads

A graduate student may be considered to be in full-time study when enrolled for 12 credits. For purposes of military service or of immigration authorities, the Registrar will certify to full-time study when a student is taking 12 credits or is on presidential appointment. Where required for others, the major professor submits a statement to the Graduate Office that the student is engaged in full-time study through research, course work and preparation for examinations; when approved, the Registrar will be advised to certify to full-time study.

Student effort required per credit at the graduate level is considered to be greater than for undergraduate work. Accordingly sixteen credits is considered to be a maximum and registration for more than sixteen credits must be justified by memorandum from the major professor. Summer registrations are limited to roughly half the above for a normal registration of eight credits and a maximum of nine credits.

Restricted Study Loads

Students holding University appointments may be subject to enrollment limitations. These regulations are administered by the Graduate Office but represent University policy and may not be waived by the Graduate Council. Instructional assistants are limited to an average of 10 credits a semester computed over two successive academic year semesters. Graduate assistants are limited to an average of 11 credits per semester or an adjustment to 22 credits for two successive academic year semesters. Research fellowships have only the credit restrictions for full-time graduate students.

Faculty, staff and graduate students on University appointment secure the permission of the appointing dean to register for the study load to be undertaken. A form is provided for this purpose by the office of the academic dean making the

appointment. This form also provides the information by which registration fee and tuition are waived for certain appointments.

Full-time employees, whether of the University or another organization, may not register for more than six credits each semester during the academic year or for more than three credits during the summer session.

In-Absentia Registration

Only students who have been admitted to candidacy for a degree may register for in-absentia work.

Registration for graduate work which is not conducted on-campus, excepting work of such nature that it can be conducted only away from the campus, shall be as in-absentia with one exception. Research for thesis or dissertation which can be expedited by use of an off-campus location need not be in-absentia. In approving such registration, the major professor will observe the usual credit limitations including that of six-credits for full-time employees, whoever may be the employer. This procedure may not be used to establish residence for a doctoral degree and all research for a program must not be off-campus.

In-absentia registration for course work (other than for research) is limited to a maximum of three credits for degree purposes. Registration is permitted only for specific courses proposed to and approved by the Graduate Council for in-absentia registration. In the case of doctoral degrees, the student's committee may permit specific additional courses beyond three credits to be taken as in-absentia. At the time of registration an outline of work to be accomplished and method of resident faculty supervision is to be approved by the instructor and department head and filed with the Graduate School (Form GS23-66). Registration is for a particular semester and a grade must be recorded at the end of that semester. A grade of "Inc" may be given where circumstances clearly justify it but the incomplete must be removed within three weeks after the beginning of the semester or summer session in which the student next registers with the University. The registration period for in-absentia courses is restricted to the last week of the summer session and the first three weeks and the last week of each semester.

Extension and other Courses

Credits earned in University of Idaho extension courses administered by the Office of Idaho Continuing Education are entered on a separate University record and are transferred to the graduate transcript after admission to the Graduate School. The residence requirements limit the amount of such work which can be applied toward the minimum requirement for a degree. All work completed forms part of the background of a student and is considered in completing a study program. Extension credits from other institutions are not accepted toward degree requirements unless the course has been approved for the study program prior to enrollment in the course.

Courses taken by correspondence may not be used to fulfill the course requirements included in a study program. Graduate students may not earn credit through the undergraduate procedure of "credit by examination (challenge)" or by use of the "pass-fail" option.

Grading System and Grade Requirements

Grades of A, B, C, D, F, W, Inc., are awarded for graduate academic work.

The grade "IP" is used to indicate satisfactory progress in research work and no letter grade is assigned until the thesis or dissertation has been approved and the final examination completed. The major professor reports grades for research when filing the final examination report form.

The grade "Inc." is used only when extenuating circumstances arise such as for illness. Failure of a student to complete the work required for a course during the semester for which he is registered is insufficient grounds for an incomplete grade. Only under unusual circumstances will an extension of time for removal of an incomplete grade be approved.

Refer to the University calendar to determine the last day of the semester that a student may withdraw from a course with a grade of W if passing. This date is the same for both graduate and undergraduate students.

To meet the requirements for an advanced degree a graduate student must attain a grade point average of at least 3.0 for all courses taken at the University of Idaho whether or not these pertain to a specific study program for a degree. Courses with grades of "D" will not be accepted toward degree requirements but will be considered in calculating the grade point average (GPA). "C" grades may be offered for doctoral degree requirements for courses listed on the study program in supporting fields; grades of "A" or "B" are required for courses listed in the major field.

Deficiencies

Deficiencies are those specific courses which are required to provide background for the courses listed on the degree program as filed. Courses to remove deficiencies may be taken for zero credit with a passing grade, and as such do not apply in computing the grade point average. However, if credit is desired for these courses, for other purposes, the resulting grades will be included in the computation of the GPA for purposes of the 2.4 disenrollment rule and for the awarding of a degree under the 3.0 rule.

Disenrollment

A student will be disenrolled after any semester in which he does not earn at least 2.4 GPA. For a student registered in only one course the rule is applied for two consecutive semesters. The grades of all the courses for which the student is registered are used when calculating the average.

Final Examination

The candidate may request scheduling of the final examination no earlier than five days after submission of final copies of the thesis or dissertation to the Graduate School Office. This is to permit review by the committee, and by the department head and college dean as they may elect. The final examination is usually oral but part may be written. The candidate is required to defend his work and show a satisfactory knowledge of his major and supporting fields. For a non-thesis degree a final assessment is also required by a written or oral examination and arrangements by candidate and major professor must be made considerably in advance of the examination.

Repeating Examinations

The final examinations required for advanced degrees and certificates, if failed, may be repeated once. The interval before the second attempt will be set by the student's committee, but may not be less than three months or longer than one year.

Application for Degree

The candidate must file an application for the degree and pay the necessary fees by March 1 of the year in which the degree is to be awarded. The application form specifies the study plan to be checked for completion by the Registrar before awarding the degree and the University catalog under which regulations apply. The candidate should be certain that he has met all requirements, or will do so by current registration before filing the application. A student filing an application but not completing requirements must pay an additional fee to reinstate the application for the commencement at which the degree will be awarded.

Commencement

A candidate may be excused from commencement exercises if he has left the campus, is residing elsewhere, and his return would impose a hardship. Candidates should write to the Graduate Office requesting an excuse and explaining the circumstances involved. The request should be filed at least one month, and preferably earlier, prior to the date of commencement. Reservations for caps, gowns and hoods must be made by a date early in the semester according to directions sent by the Registrar upon receipt of the application for the degree.

MASTER'S DEGREES

A minimum of 30 credits is required for a master's degree but some additional work may be stipulated in individual cases because of particular objectives or the need for additional background. Of the minimum of 30 credits required for a master's degree at least 18 credits must be in courses at the 500's level (exceptions are made for certain degrees). Remaining courses may be at the 400's level; 300's level courses may be offered only in supporting fields, not in the major (certain degrees permit exceptions). Courses numbered in the 100's and 200's may not be used to fulfill the requirements for a master's degree. Research and thesis credits may not be applied toward a non-thesis degree.

At least 22 of the required credits must be completed in residence at the University of Idaho. Thus, the combined number of credits earned in another graduate school, through University of Idaho extension, and by in-absentia registration may not exceed eight to be applied toward the minimum requirement of 30 credits. Additional credits above eight earned off campus are part of the student's background and increase the credits offered above the minimum.

All credits submitted to meet the requirements for a master's degree must have been earned within six consecutive years prior to the commencement at which the degree is awarded.

A foreign language is not a general requirement for a master's degree and it is considered that any needed proficiency has been developed much earlier in the students academic career. However, some departments may require completion of a language examination or course work as a degree requirement. If so, it is listed as a deficiency on the study program.

Appointment of Major Professor and Committee

The major professor is appointed as early as possible and during the student's first semester of residence. The committee is recommended by the major professor and approved by the dean of the Graduate School. The committee normally will consist of the major professor as chairman, a second member from the major field, and a professor representing the supporting field outside the major. The committee approves the study program, advises on the thesis research, and conducts examinations as required. The recommendation of a majority of the committee is necessary for a candidate to receive the degree.

Approval of the Master's Degree Program

During the first semester in residence the student prepares, in conference with the major professor and committee, a master's degree program outlining all the work to be completed to fulfill the requirements for the degree. The major professor submits this program for approval to the dean of the Graduate School. A student who fails to submit a program promptly risks taking courses which may not be acceptable toward the degree. The student, major professor and committee receive copies of the approved program. Normally, some work will be taken outside the major department. Students and major professors alike are reminded that work entered on the study program becomes the minimum requirement. The student may wish to elect additional courses above the minimum but is cautioned that if entered on the program they must be completed to receive the degree. An excessive amount of such extra work will delay the completion of the required work. Study plans submitted which require in excess of 36 credits should be accompanied by a written explanation from the major professor stating the need for the additional credits.

Thesis

The student chooses, in conference with his major professor, his thesis subject as early as possible after the first registration in the Graduate School. Failure to start work on the thesis promptly may lead to a postponement of the date the degree can be awarded. Each thesis is reviewed by the Graduate Council and

requires the approval of that body before the degree is granted. The original and first copy of the thesis must be deposited in the Graduate School Office no later than May 15 for submission to the Graduate Council for participation in June commencement exercises.

Candidacy for a Master's Degree

A student is eligible for candidacy after completing 15 credits with a minimum GPA of 3.0 upon recommendation by the major professor. Approval is by the dean of the Graduate School. This is the point at which students are selected as qualified to continue work toward a master's degree and only those who meet or exceed minimum requirements will be recommended. A student who has not been admitted to candidacy may not file an application for a master's degree.

Examinations

Students fulfilling the requirements of those degrees which require a comprehensive examination secure the details regarding this examination from the department in which the examination is given. Passing the oral or comprehensive examination is one of the requirements for the master's degree. Students are not eligible to take these examinations until they are in the process of completing the final requirements for their degrees.

Specific Master's Degrees

Master of Arts and Master of Science. The M.A. and M.S. degrees in all fields require a thesis (except for an option in mathematics). A maximum of 10 credits in research and thesis may be applied toward the minimum credit requirement of 30 credits but some departments may indicate a lower limit of not less than six credits. A final oral examination is required and conducted by the committee on the Moscow campus.

Master of Architecture and Master of Fine Arts. The M.Arch. and M.F.A. degrees require the submission of an original work in architecture or of an extended creative project in art. The work must be accompanied by a written discussion of the nature of the work including such theories, experiments, or evolutionary processes as were used in effecting the final result. This work shall be defended in an oral examination. A student in art is admitted to the degree program only after submission of a portfolio of work.

Master of Business Administration. The M.B.A. is a non-thesis degree which requires a written comprehensive examination. Certain courses are required as described in the Graduate School Bulletin.

Master of Education. The M.Ed. is a non-thesis degree and requires a written comprehensive examination. A description of topics covered by the examination is available from offices in the College of Education.

Master of Agriculture, Master of Forestry, Master of Natural Science. The M.Ag., M.For., and M.Nat.Sc. degrees require a written and/or oral comprehensive examination. A maximum of four credits in approved 400's courses, basic to the major field, may be substituted for four credits of 500's courses with the approval of the major professor and the dean of the Graduate School.

For the M.Nat.Sc. degree a major and a minor are selected from the following fields: bacteriology, biology (botany, zoology), chemistry, earth science, mathematics, and physics. A minimum of 12 credits constitutes the major field and a minimum of eight credits the minor field. Candidates for the degree may have taken their bachelor's degree in any recognized field but may need certain background courses.

Master of Music. The M.Mus. requires the completion of one of the following options: (1) a thesis, which may be an original musical composition, (2) a public

graduate recital, or (3) a written comprehensive examination in music. No credit is granted for the terminal project under the non-thesis options (2 and 3) and the selection of an option is subject to the approval of the Department of Music. To enter a program of studies leading to the M.Mus. degree, students must hold an accredited bachelor's degree which included a minimum of sixty semester hours or equivalent in music courses.

Master of Nuclear Science. The M.Nuc.Sc. is a non-thesis degree for students registered in the NRTS program and requires a written comprehensive examination. Candidates come to the campus to present seminars and for consultation.

Master of Arts in Teaching. The terminal degree of Master of Arts in Teaching (M.A.T.) is designed to prepare teachers both in scholarly competence and in teaching effectiveness. The department responsible for the candidate's area of major specialization will have a plan for this degree which has been approved by the Graduate Council. Each student's program must provide for integrated knowledge and must not consist of scattered, unrelated courses. The general requirements of the Graduate School apply except as modified by the specific requirements of the two options; also, at least six of the minimum of thirty credits required for a master's degree must be in courses designated as primarily for graduates (numbered 500 and above). The remaining courses may be at the 400's level, or at the 300's level where these are part of a logical sequence of study.

OPTION I — Master of Arts in Teaching (Name of Subject Field). Primarily for certified teachers who wish to strengthen their subject-matter preparation. Majors may be taken in a subject field recognized for certification by the Idaho State Department of Education, including both single subjects and composite fields. Enrollment in a program of studies under option I requires the consent of the chairman of the subject-matter department or by the major adviser of the composite area. Before being advanced to candidacy, the student must qualify for a standard teaching certificate in Idaho or in a state having similar standards. The major professor for students under option I is from the subject field or composite area; the cognate adviser is from Education. The specific requirements of this option are: (a) at least twenty of the minimum of thirty credits in the subject field; (b) a minimum of six credits, normally at the 500's level, in professional education; and (c) a comprehensive examination, which may be written or oral, or a combination of the two, in the subject field.

OPTION II — Master of Arts in Teaching. Primarily for liberal arts graduates holding the B.A. or B.S. degree who wish to take advanced work in their area of subject-matter concentration and complete the professional education requirements for standard certification. The major for students under option II is education. Enrollment in a program of studies under this option requires the consent of the head of the Department of Education. Before the degree is conferred, the student must qualify for a standard teaching certificate in Idaho or in a state having similar standards. The major professor for students under option II is from Education; the cognate adviser is from the area of subject-matter concentration. The specific requirements for this option are: (1) a sufficient number of credits in professional education, as determined by the College of Education, to qualify for certification; (b) a minimum of six credits, normally at the 500's level, in the area of subject-matter concentration; (c) a comprehensive examination, which may be written or oral, or a combination of the two, in professional education.

THE DOCTORAL DEGREES

The University of Idaho awards the degree of Doctor of Philosophy in recognition of high achievement in scholarly and research activity. The degree of Doctor of Education is given for high scholarly attainment and in recognition of the com-

pletion of academic preparation for professional practice. Candidates for either degree meet the same requirements for residence, candidacy, and final examinations, but differ in requirements for foreign language, professional experience, and intermediate examinations. Both degrees require the completion of a dissertation although the nature of this work differs for each.

The major professor and department offering a particular doctoral program will indicate the general philosophy of the degree program, the objectives of courses and seminars, the research specialties available, and requirements peculiar to the department. Admission into the doctoral program is granted only to those who are considered capable of completing the degree and permission to work toward the degree is granted only after the student files the "Notice of Intention to Work for a Doctoral Degree." Students are advised to begin research shortly after entering the program and not wait until much of the course work has been completed so that course and research work form an integrated pattern.

Requirements for Doctoral Degrees

Credit Requirements. A minimum of 78 credits beyond the bachelor's degree is required with at least 52 credits in courses numbered above 500. The research effort for the dissertation normally constitutes one-third of the total credit requirement, but the stated effort should not exceed one-half of the minimum work required. It is expected that some study will be completed in a field supporting the course and research programs in the major field.

Residence Requirements. At least three academic years of study beyond an acceptable bachelor's degree is the minimum time requirement. Two of these years shall be at the University of Idaho, and at least two semesters above the master's degree or two of the last four semesters must be devoted to the doctoral study program and spent in continuous full-time residence on the Moscow campus. This requirement of continuous residence is normally met by completion of a full graduate program during a single academic year beyond the level of the master's degree. To obtain residence credit the student must complete at least nine credits of work on the graduate level each semester. A full-time employee, most of whose work is research provided for in the study plan, may be considered in full-time residence although registered for less than nine credits upon approval the proposed plan of work by the Graduate Office.

A student may be granted a leave of absence to carry out a special investigation or take advantage of unique opportunities for study at another institution.

Time Limit. All degree requirements must be completed within five years after admission to candidacy. This time limit can be extended only by recommendation of the committee and completion of new examinations. The second examinations will include recent advances in the student's major and related areas and will require additional preparation.

Awarding Doctoral Degrees to the Faculty. Doctoral degrees may not be awarded to a University faculty member above the rank of instructor by a department in the college in which he is teaching, unless the faculty member was admitted to candidacy before promotion to professorial rank.

Foreign Language Requirement for the Ph.D. Degree. A high proficiency in reading one foreign language is a minimum requirement. For the languages available through the ETS Graduate School Foreign Languages Testing Program (GSFLT) (currently German, Russian, Spanish and French), the candidate offers a minimum score as set by the Graduate Council. The department offering the major may set language requirements in addition to the minimum established by the Graduate Council.

Particular Requirements for the Ed.D. Degree. The Doctor of Education degree is awarded only through the College of Education and additional requirements may be obtained from the department of interest. A period of professional practice is required for the Ed.D. degree and the period involved is stated on the study plan.

Procedures for Doctoral Degrees

Appointment of Major Professor. As soon as feasible with respect to the availability of faculty personnel in the department and the presentation of research topics, the student and department head or committee agree upon and nominate the major professor. The Graduate Office notifies all concerned of the appointment. Usually the student will have been registered initially by the unit head as the appointment of the major professor should not be made hurriedly and without regard to all aspects of departmental, college and student interests. A student completing a master's degree at this University will need a new major professor appointed if continuing for doctoral work. This major professor need not be the same as for the master's degree.

Filing Notice of Intention to Work for a Doctoral Degree. No student may consider that he is accepted for a doctoral degree program until the notice of intention to work for the degree has been initiated by him, approved by the department or college committee, and approved by the Graduate Office. The notice of intention also nominates the supervisory committee in accord with departmental and college interests. The notice of intention may not be filed until at least one year of graduate work has been completed beyond the bachelor's level, or a master's degree has been earned. The notice of intention should be completed at the earliest date after attainment of eligibility.

Selection of Supervisory Committee. The supervisory committee normally consists of the major professor as chairman, a second member from the major field, one member from the minor or supporting area, and a member from outside the major or minor fields. The committee is appointed by the dean of the Graduate School in accord with nomination procedures of the department and college concerned. The committee assumes the responsibility of all aspects of the student's program under the leadership of the committee chairman, who is also the research adviser. For programs which are strongly interdisciplinary a major professor and a research professor may divide responsibilities. The committee makes periodic reviews of the student's program and permits him to continue only as long as his work is of good quality.

Qualifying Examinations. Following departmental procedures the qualifying examinations, written and or oral, serve to assess the background of the student in both the major and supporting fields and to provide partially the basis for preparation of the student's study program. Students do not pass or fail this examination although lack of adequate background may form a recommendation to the Graduate Office that the student withdraw from the program. A particular department may or may not require a master's degree as a prerequisite for the qualifying evaluation. In some cases a department may wish to hold the qualifying examination before filing the notice of intention especially for students who may appear to have inadequate preparation.

Preparation of Study Plan. As soon as practical after approval of notice of intention and appointment of supervisory committee, the student and major professor prepare a study plan, on forms provided, which are approved by his supervisory committee and dean of the Graduate School. Changes deemed desirable at a later date are expected to contain breadth as well as depth. The research topic is stated, at least generally, on the study plan. The final awarding of the degree

is based upon completion of all items required by the study plan. The plan should therefore, be the result of detailed and careful consideration of objectives rather than an unrelated listing of courses. Excessive course requirements should be avoided.

Preliminary Examinations for Ph.D. Degree. A student is not eligible to take the preliminary examinations until completing at least four months or one semester of academic work after approval of the study plan. Upon completion of the foreign language requirements and most of the course work, and with the dissertation project outlined and presented in detail, the student may secure the consent of his supervisory committee and the dean of the Graduate School to take the preliminary examinations. These may be written or oral, or both, and are to assess progress toward degree objectives. The preliminary examinations cover the entire area of the student's graduate study and other topics basic to the degree program. The department head and major professor advise the student of general expectations. If the preliminary examinations are failed they may be repeated only once within the period of not less than three months or more than a year following the first attempt.

General Examinations for Ed.D. Degree. When the student approaches the end of his course work, has completed the professional experience requirement and has outlined the dissertation subject in detail, the supervisory committee and the graduate dean approve the holding of the general examinations. These are both written and oral and are to assess progress toward degree objectives. A student is not eligible to take the general examinations until completing at least four months or one semester of academic work after the approval of the study plan. If a general examination is failed, it may be repeated only once; the repeat examination must be taken within a period of not less than three months or more than a year following the first attempt.

Admission to Candidacy. This is the point at which students are selected as qualified to continue toward an advanced degree. A student is admitted to candidacy for the Ph.D. degree upon passing the preliminary examinations, or for the Ed.D. degree upon passing the general examinations.

Final Examination. The final oral examination cannot be scheduled earlier than five days after the final copies of the dissertation have been submitted to the Graduate Office. The major professor obtains the authorization form from the Graduate Office and schedules date, time, and place.

Dissertation. Each dissertation is reviewed by the Graduate Council and requires the approval of that body before the degree is granted. The original and first copy of the dissertation and an abstract not exceeding six hundred words must be deposited in the Graduate School Office no later than May 1 for participation in June commencement exercises. Doctoral candidates pay a \$20 fee for the publication of the abstract in Dissertation Abstracts and for microfilming the dissertation by University Microfilms, Inc.

Awarding of Degree. A doctoral degree cannot be awarded at commencement earlier than five months after the date of admission to candidacy.

REQUIREMENTS FOR A PLANNED FIFTH-YEAR PROGRAM OF TEACHER EDUCATION

This year of study provides an opportunity for strengthening of teaching competence and for specialized study. The student is admitted to the Graduate School of the University in a category designated as 5th year. All courses taken in this category will be recorded on the graduate transcript as 5th year.

A person admitted to the fifth year of teacher education must have a baccalaureate degree from an accredited college and must have met minimum standard certification requirements of the State of Idaho. The fifth year of teacher education is to be completed following a period of at least one year of initial teaching experience. The teacher may complete the period of study during an academic year or through summer sessions.

The program is to be planned in the light of the teacher's first teaching experience and/or professional goals and in consultation with co-advisers, one from the College of Education and one from the subject matter area. The study program is sent to the Graduate School Office within 10 weeks (four weeks in summer) of the student's first registration. The fifth year shall include a minimum of 30 credits of which at least 15 credits are at the 300's and 400's level. Students in the 5th year program do not normally enroll in 500's series courses; they may do so only upon recommendation of the appropriate co-adviser and upon approval of the Graduate School. Study shall be in both academic and professional fields with at least 18 credits devoted to the teaching major and closely related subject areas. At least 22 credits must be resident credit (on-campus). No more than 12 of the required 30 credits may be completed prior to or during the first year of teaching experience.

A student in the fifth-year program who later requests admission to a master's degree program (an exceptional situation) must meet all of the admission requirements necessary for regular enrollment in the Graduate School. Courses taken in the fifth-year program may be applied toward the requirements for the master's degree providing they are applicable toward the course program for the degree and are so presented with the application for admission and are approved.

PROFESSIONAL DEGREES IN ENGINEERING AND MINING

As a form of recognition for recipients of bachelor's degrees from the University of Idaho, professional degrees are offered in several fields. The degrees may be granted to graduates of the College of Engineering or the College of Mines after five years of appropriate professional experience, one year of which is in responsible charge, upon submission of an acceptable thesis. Preliminary inquiry should be directed to the department concerned giving a detailed statement of professional activity since graduating, a list of references, and the proposed thesis subject. The department will review and recommend a course of action. Upon invitation to proceed with degree requirements the student prepares the thesis which is usually based on a professional project. This degree carries the same diploma and thesis binding fees and the same deadlines as for master's degrees. Preliminary negotiations and authorization should be completed in the summer or early fall to afford ample time for the preparation and review of the required thesis for award of the degree in June. A listing of professional degrees is given in Part I.

PROFESSIONAL CERTIFICATE IN EDUCATION

Two-year graduate programs are available leading to the Professional Certificate in Education. These programs are intended to meet the needs of students who desire to follow an organized program of graduate work beyond the master's degree, but who may not wish to pursue a doctoral program. Programs encompass the preparation specified by the appropriate professional organization. General Graduate School procedures are followed. General requirements for the certificate are:

1. An acceptable program of at least 30 semester credits of advanced work is required for those who hold a master's degree in the appropriate area. Additional hours may be required for those who have master's degrees in other

areas or who have deficiencies in professional courses. Within the first six weeks after embarking on this program each student will submit to the College of Education and the Graduate School for approval a study program outlining his plan for meeting the requirements.

2. All of the required 30 credits must be earned in residence (this is in addition to residence required for an advanced degree) at an institution approved for graduate work beyond the master's degree. (No extension courses may be counted beyond the master's degree, nor correspondence courses applied toward any advanced degree.) A student who has a master's degree from the University of Idaho may transfer a maximum of 10 semester credits subsequently earned in the graduate school of another institution; other students may transfer a maximum of 6 semester hours earned above their master's degrees.

3. No credits may be applied toward the Professional Certificate in Education that are more than eight years old at the time the certificate is awarded.

4. To meet the requirements for this certificate the candidate must earn grades of "A" or "B" in all courses submitted for the certificate. A grade below "B" is unsatisfactory and will not be counted toward fulfilling the minimum requirements.

5. A comprehensive examination during the last summer or semester in residence is required.

Refer to the graduate bulletin for specific minimum course requirements for particular concentrations.



SUMMER SCHOOL AND CONTINUING EDUCATION

Paul Kaus (Director, Summer School; Coordinator, Continuing Education).

THIS DIVISION OF THE UNIVERSITY is responsible for directing the Summer School program, the University's Civil Defense extension program, supervising the undergraduate portion of the educational program at the National Reactor Testing Station in Idaho Falls, the real estate certificate program, and for coordinating University of Idaho programs administered by Idaho Continuing Education.

SUMMER SCHOOL

Summer School consists of a basic eight-week session, plus a two-week post session. Approximately 170 undergraduate and 120 graduate courses are offered each summer. Many of these courses are accelerated into one-, two-, or three-week concentrated sessions, thus allowing the student to complete a course in less than the full eight weeks. Generally, courses are offered in every division of the University with the exception of the College of Law. Registration is held on the first scheduled day of Summer School. Admissions procedures are described in detail in the summer bulletin which is published each February and is available from the Division.

Special Features

Some special features which are included as part of Summer School include the College of Mines summer camp, the College of Forestry summer camp, the Inland Empire summer music festival, summer theatre, traveling workshop in painting, high school journalism institute, and the high school summer music camp. Other special programs are developed as the need occurs.

Recreation Program

A self-supporting summer recreation program is offered in conjunction with Summer School. Included are steak fries, boat trips on the Snake River and lakes in the north Idaho region, square dancing, and tours to areas of special interest in northern Idaho.

CONTINUING EDUCATION

Civil Defense University Extension Program

The University of Idaho, in contract with the U.S. Office of Civil Defense, cooperates with the State of Idaho Department of Disaster Relief and Civil Defense in providing non-credit, professional improvement courses in civil defense throughout the state. Thirty-two hour courses, as well as conferences and simulated exercises, are presented for city, county, and state officials to acquaint them with emergency planning and operations under emergency conditions, whether the emergency be nuclear war, natural disaster, or man-made disaster.

This program is coordinated from the campus with a resident instructor in southern Idaho. The annual schedule of the eight different courses is available from the Division of Continuing Education, University of Idaho.

NRTS Education Program

The undergraduate portion of the educational program at the National Reactor Testing Station in Idaho Falls is supervised by this Division. The program offers resident credit with enrollment generally limited to contractor employees of the

Atomic Energy Commission. Courses are offered each semester, but no summer program is scheduled. The graduate portion of the program is administered by the Graduate School. Further information may be obtained from W. D. Miller, Resident Director, NRTS Education Program, P.O. Box 1845, Idaho Falls, Idaho 83401.

NRTS Certificate Program

Students enrolled in the NRTS Education Program (see above) who complete the course requirements with an average grade point of 2.00 or better, and who pass an examination in the field of concentration, may be awarded the "Certificate of General Proficiency in (name of field)." Students who maintain an average grade point of 2.75 or better are exempted from the final examination. The program of studies leading to each certificate includes from 24 to 33 semester credits of course work which has been approved by the faculty of the appropriate subject-matter department at the University and also approved by the University Curriculum Committee.

Real Estate Certificate Program

The real estate certificate program is offered cooperatively with the College of Business and Economics, the Idaho Real Estate Commission, and the Idaho Association of Realtors. This non-credit program offers units leading to a fundamentals or advanced certificate. At the present time, five courses are available in the fundamentals program: (1) essentials of real estate practice, (2) real estate law, (3) real estate appraisal, (4) real estate finance, and (5) real estate marketing. Two advanced courses — advanced appraisal and advanced finance and taxation — have also been offered. Other courses are still to be developed in the advanced program.

Courses are offered in various Idaho communities where it is determined that there are sufficient students, a qualified instructor, and adequate facilities. Instructors are employed subject to the approval of the College of Business and Economics. Records are maintained and funds are administered by the Division of Continuing Education on the University campus. The program is designed for the licensed realtor and broker, but permission may be granted for others to enroll. Since courses are developed at the beginning of the semester, no advance schedule is available, but interested individuals may write to the Idaho Real Estate Commission, Statehouse, Boise, Idaho 83702.

Extension Courses

The purpose of the extension-course program is to enable adults throughout the state to strengthen their professional qualifications and continue their general education. The program is administered by Idaho Continuing Education through three regional offices. Selection of courses to be offered, initial contact with potential instructors, the administration of funds, and arrangements for facilities are handled by Idaho Continuing Education.

Neither the University of Idaho nor Idaho Continuing Education publishes a catalog of extension courses. Almost any of the courses listed in the general University of Idaho catalog may be offered by extension if there are (a) adequate instructional and research facilities, (b) a qualified instructor available, and (c) a sufficient number of students to make the course self supporting. Selection of courses is made by the regional directors of Idaho Continuing Education.

In programs where it is proposed that the University of Idaho grant college credit, both the instructor and the course must be approved by the University of Idaho. Before the University can accept credit registrations, the student must provide application and registration information and otherwise meet the requirements for admission to the University. The entrance requirements for credit extension courses are the same as they are for on-campus study (see admissions section

in Part I of this catalog). In some courses, non-high-school graduates over 21 years of age may be allowed to enroll on a non-credit basis.

Students are not permitted to carry extension course work while enrolled in residence at the University of Idaho. This rule may be waived by written approval of the student's academic dean. The amount of credit the student may apply toward a bachelor's or master's degree is limited (see general requirements for degrees and the regulations of the Graduate School).

Adult Education Centers

The University of Idaho grants resident credit for approved adult education centers administered by Idaho Continuing Education. At the present time, this is restricted to the Coeur d'Alene Education Center which operates summers only. The center is administered by Idaho Continuing Education. The selection of courses, administration of funds, and arrangements for facilities are handled by Idaho Continuing Education.

Each instructor and course must be approved by University of Idaho officials before the course may be offered and before credit can be granted. Students enrolling for credit must meet full requirements for admission to the University of Idaho. This requires not only application, but also transcripts from institutions previously attended.

A candidate for a baccalaureate degree may complete 16 of the 32 semester credits of residence work required in his senior year through study at an adult education center. The last 16 credits must be completed on the Moscow campus either by attendance for one semester or two summers. If this work is done in two summers, the candidate may take extra credits, over and above the number of credits required for his degree, through correspondence courses, extension courses, adult education center courses, or attendance at another fully accredited institution during the period between the two summers.

Correspondence Study

The University of Idaho grants credit for the correspondence study program administered by Idaho Continuing Education. Before the University grants credit, the courses and grader must be approved by University officials. The correspondence courses which are offered are especially helpful to those preparing for various vocational fields, teachers who wish to earn or renew a teaching certificate, those in the military service, and others wishing to improve their educational and cultural background.

Each course represents an amount of work equivalent to that done by students in similar courses on the campus. Anyone who feels he is qualified by education, training, or experience is eligible to enroll. Students who expect to apply the credit toward a degree must satisfy all entrance requirements. The amount of correspondence credit applicable toward a degree is limited (see general requirements for degrees).

A correspondence study bulletin describing the specific courses available and the procedures for enrolling and completing courses is available. Copies may be obtained from any regional director of Idaho Continuing Education, or by writing the correspondence study office, Idaho Continuing Education, University of Idaho, Moscow, Idaho 83843. Both college and high school courses are offered as well as some non-credit courses.

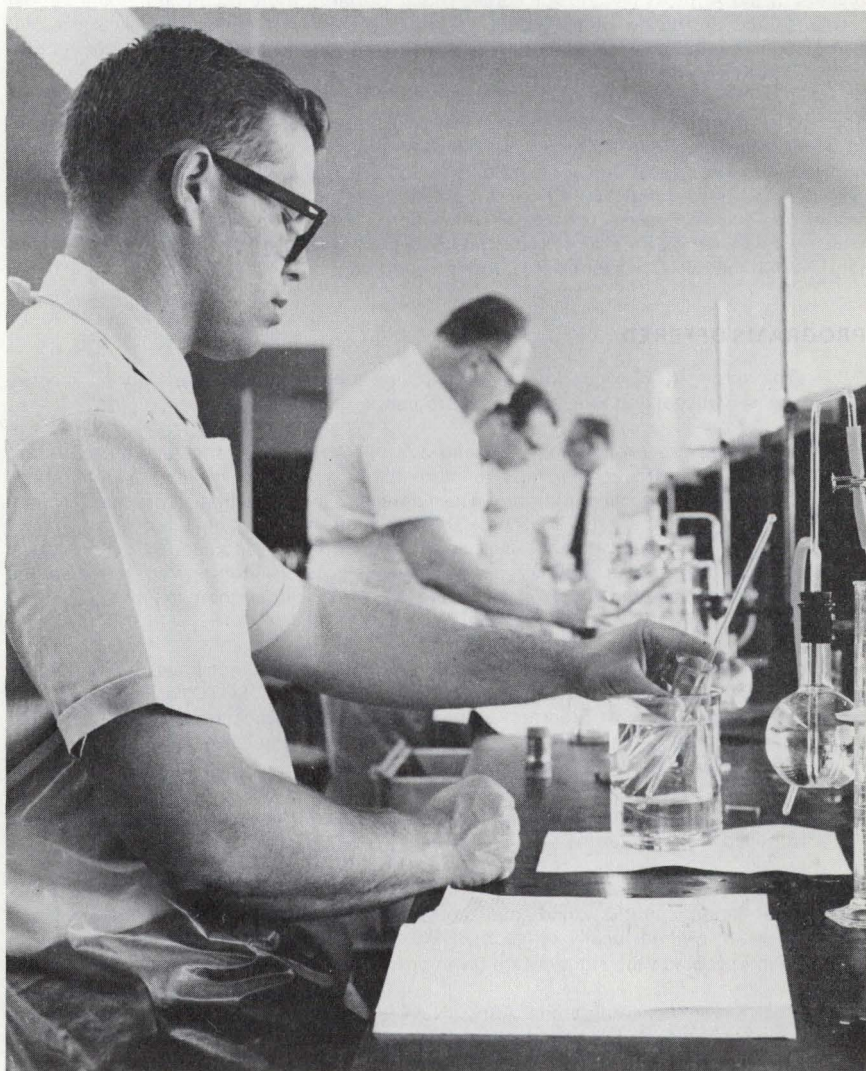
Students enrolled in residence are not permitted to carry correspondence courses during their period of resident registration. This rule may be waived by written permission of the student's academic dean.

Instructional Conferences

The Division of Continuing Education, in cooperation with academic departments,

each year sponsors a large number of short-term, non-credit programs. Many of these programs depend on user fees for financial support, but public funding may be possible for specific types of programs. This type of instructional program offers very concentrated continuing education in a specific subject field and is often concluded within a three or four day period. Such instructional conferences may be arranged for occupational or professional groups as well as for those desiring to broaden their knowledge in a general interest field. Subject matter expertise is provided by members of the University faculty or by visiting specialists.

Individual instructional conferences are arranged as the need arises. Announcement of specific programs are made available by direct mailing to those most likely to be interested, and by newspaper and other news announcements. Individuals interested in proposing specific instructional programs are invited to contact the Division of Continuing Education on the University of Idaho campus.



RESERVE OFFICERS' TRAINING CORPS

Robert W. Coonrod (Coordinator); Lt. Col. Richarz (Professor of Aerospace Studies); Col. Fletcher (Professor of Military Science); Capt. Voorhees (Professor of Naval Science).

THE RESERVE OFFICERS' TRAINING CORPS at the University of Idaho consists of the Department of Aerospace Studies (Air Force ROTC), Department of Military Science (Army ROTC), and Department of Naval Science (Naval ROTC).

The purpose of ROTC is to prepare selected students to serve as commissioned officers in the Army, Navy and Air Force. This important program constitutes the largest single source of trained officers both for the reserves and regular forces. Successful completion of requirements for both a baccalaureate degree and the ROTC studies normally leads to a commission in the Armed Forces.

The ROTC program at colleges and universities reaches back more than a century to 1862 when the Morrill Act required all land-grant colleges to offer courses in military training. The Morrill Act was modified in 1916 by the National Defense Act which provides the basis for ROTC as we know it today. The 88th Congress, in September, 1964, passed the Reserve Officers' Training Corps Vitalization Act, Public Law 88-647, which was signed by President Johnson October 13, 1964. It is under the provisions of this law that the ROTC programs are currently operating.

PROGRAMS OFFERED

The three ROTC departments at the University of Idaho offer, on an elective basis, two-year and four-year ROTC programs.

Under the provisions of the present law, the Army, Navy and Air Force are permitted to award scholarships to students selected each year in a nation-wide screening and testing program. The financial assistance that is provided in conjunction with these ROTC scholarships includes tuition, books, and all standard fees listed in the catalog except room and board. In addition, students receive subsistence pay of \$50.00 per month. Selected students who are awarded ROTC scholarships must enroll in the four-year, rather than the two-year, program.

Qualified undergraduate and graduate students who do not have ROTC scholarships, but who complete the first two years of basic ROTC, or elect to enroll in the new two-year program, and are selected to participate in advanced ROTC training during their last two years of college, will receive subsistence pay of \$50.00 each month for twenty months.

Uniforms and textbooks for ROTC courses are also provided at no cost to students enrolled in the programs.

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 ROTC department. Upon successful completion of this program, the students are given private pilot licenses.

Information concerning the Army, Navy and Air Force ROTC courses may be found in Part III. Specific details of each program are contained below. Further inquiries are welcomed and should be addressed to the Department of Military

Science (Army ROTC), Department of Naval Science (Naval ROTC), or Department of Aerospace Studies (Air Force ROTC).

ARMY ROTC

The Army has the oldest ROTC program on the campus and can trace its origin to 1894 when military training was first offered at the University of Idaho.

The Army ROTC program is designed to provide a student with military training necessary to qualify for a commission in the Army upon graduation. After the successful completion of one semester of the program, Army ROTC students may be deferred from selective service as long as they remain in good standing with the University and the Department of Military Science.

Two programs are offered: a four-year program and a two-year program. Both programs are organized in two phases. The four-year program consists of the basic course and the advanced course. The two-year program consists of the basic summer camp and the advanced course.

The Basic Course

The basic course normally is taken in the freshman and sophomore years. The purpose of these two years of instruction is to introduce the student to basic military subjects. Portions of the basic course may be waived for participation in high school ROTC.

The Basic Summer Camp

A student with at least two years of successful college work may apply for a six-week basic ROTC camp. Applicants are accepted during the first half of the second semester of each school year. The basic camp takes the place of the basic course. Transportation costs, food, housing, and pay of an Army recruit are provided during the summer camp period.

The Advanced Course

The advanced course is devoted to a two-year study of the more complex phases of military leadership training, and is open to students who have demonstrated a positive potential for becoming commissioned officers. Students may qualify by completing the basic course or the basic summer camp. Veterans and transfers from military schools may also qualify. A six-week training camp is held between the first and second year of the advanced course. The normal pay for advanced course students is increased to a total of approximately \$275 while at summer camp. Transportation costs, food and housing are provided.

Upon successful completion of the advanced course and a bachelor's degree, a student is eligible for a commission. The age limit for commissioning is 28 years. Graduate students who qualify may enroll in the advanced course. The active duty obligation for a graduate of the Army ROTC program is two years.

Scholarships

Two-year scholarships are available to students who are completing the basic course. Four-year scholarships are available to high school seniors. Information is available from high school principals.

NAVAL ROTC

The Naval ROTC program was established in 1946 at the University of Idaho by authority of Title 10, U.S. Code 6901, generally known as the Holloway Plan.

Naval ROTC students are of two types: "regular" students and "contract" students. The naval science course requirements are the same for both types of students. The four-year course is based on the Navy standard curriculum. The University offers a degree of Bachelor of Naval Science (see College of Letters

and Science section) under certain conditions; however, Naval ROTC students normally seek one of the other degrees offered.

The Program

The NROTC program consists of twenty-two semester credits of naval science courses and other specified courses as required to qualify for a commission. Both regular and contract students must qualify as first-class swimmers prior to graduation. During spring semester, NROTC students may participate in a field trip to observe naval training and operations at other activities.

Contract students are selected from the freshman class (and sophomores in a four-and-one-half or five-year program) by the head of the Department of Naval Science. These students complete the four-year NROTC program and participate in two summer training sessions, each about six weeks in duration. These training sessions are normally taken in the summers immediately following the NROTC student's second and third years in the program. Contract students receive subsistence allowance of \$50.00 per month during the last two years of college. Upon completion of all Navy requirements and when qualified for a baccalaureate degree, the contract student receives a commission in the Naval Reserve or the Marine Corps Reserve.

The two-year contract program leads to a commission in the Naval Reserve or the Marine Corps Reserve. It is a selective program designed to afford enrollment opportunities to college students who are in the process of completing their sophomore year in college. Applications for the two-year program may be submitted to the head of the Department of Naval Science beginning in the fall semester and until March 15 each year. Final selection for this program is made by the Bureau of Naval Personnel. Selected applicants attend a naval science institute at a designated university during the summer prior to their junior year. Travel expense, tuition, room and board, and \$95.70 per month are all paid by the Navy Department. Upon successful completion of the institute, students may enroll at the University of Idaho for the ensuing two years of naval science subjects taken concurrently with their pursuit of a baccalaureate degree in a chosen academic field. A second paid summer training period of six to eight weeks duration, normally at sea, between their junior and senior years provides additional naval science instruction.

Scholarships

The Navy provides financial support to a total of 5,500 students who are enrolled in four-year NROTC programs at 53 colleges and universities throughout the nation. Regular NROTC students are selected each winter in a nation-wide competitive testing and screening program. For those students the Navy pays all tuition, cost of textbooks, other fees of an instructional nature and subsistence pay of \$50.00 per month for a maximum of four years. Regular students are required to participate in three summer cruises, each of about seven weeks duration. For specific details, contact the head of the Department of Naval Science.

Upon completion of Naval requirements and when qualified for a baccalaureate degree, the regular student is commissioned as a regular officer in the Navy (or in the Marine Corps, if he so desires).

Navy ROTC students are deferred from selective service as long as they remain in good standing with the University and with the NROTC Unit.

AIR FORCE ROTC

The Air Force ROTC was established at the University of Idaho in 1952 for the purpose of providing specialized education to students who desire to become professional Air Force officers and to prepare them to meet the challenge of the aerospace age. The Air Force ROTC program is administered by the Department of Aerospace Studies.

AFROTC is open to all male students and is offered as a four-year and as a two-year program.

The four-year program is designed primarily for students who wish to be eligible to compete for AFROTC scholarships. It is also available to students who do not win AFROTC scholarships.

The two-year program is designed especially for undergraduate students and graduate students who desire to take Air Force ROTC during their last two years of college. Students who are interested in the two-year commissioning program should apply to the Department of Aerospace Studies (AFROTC) no later than January 31 of the year in which they plan to enter the program. Students not presently enrolled at the University but who plan to enroll here for their last two years, are also eligible.

Undergraduate and graduate students who elect to enroll in the two-year AFROTC program are not required to take the general military course. Instead, they participate in a six-week period of field training at an Air Force base. This field training course is offered during the summer and must be completed prior to entering the two-year program. Students are paid half the base pay of a second lieutenant for the six weeks, plus six cents a mile for travel to and from the base. Food, lodging, medical care, and uniforms are also furnished at no cost.

The aerospace studies curriculum for the AFROTC program is divided into the general military course and the professional officer course. Students who elect to take the four-year program are required to complete both. Students in the two-year program take only the professional officer course.

The General Military Course

The general military course consists of four semesters of general military education and corps training. Students explore the causes of present world conflict as they affect the security of the United States. Students also participate in corps training.

The Professional Officer Course

The professional officer course consists of four semesters of professional officer education which entails a study of the growth and development of aerospace power, professionalism, leadership, and management.

In addition to the on-campus advanced work, all-students in the four-year program must complete a four-week period of off-campus, pre-commissioning training during the summer at an Air Force base. This field training unit must be taken normally between the second and third semesters of the professional officer course. This pre-commissioning training is not to be confused with the six-week field training course which must be taken in lieu of the basic course by students in the two-year AFROTC program. The pay for this four-week summer training course is half the basic pay of a second lieutenant. Travel is paid at the rate of six cents per mile to and from the base. Food, lodging, medical care, and uniforms are furnished at no cost.

Scholarships

The Air Force is authorized to award a total of 4,000 scholarships to students who are enrolled in the four-year AFROTC program at 175 colleges and universities throughout the nation.



3

COURSE DESCRIPTIONS

NUMBERING SYSTEM AND KEY TO ABBREVIATIONS AND SYMBOLS

NUMBERING SYSTEM

Basic Plan

10-99, high-school level or remedial courses carrying no credit.

100-299, lower-division courses (primarily for undergraduates).

300-499, upper-division courses (primarily for advanced undergraduates and graduates).

500 and above, graduate courses (number 500 is reserved for master's research and thesis; number 600 is reserved for doctoral research and dissertation).

Letter Designations With Course Numbers

Certain course numbers also include letters preceding the arabic numbers, e.g., R101, X100, etc. These letters designate the following:

C, offered by correspondence only.

N, offered in the National Science Foundation program only.

R, offered only in the educational program of the National Reactor Testing Station at Idaho Falls.

X, offered by extension only.

ID, cooperative course with Washington State University offered at the University of Idaho — available to WSU graduate students.

WS, cooperative course with Washington State University offered at WSU — available to University of Idaho graduate students (the WSU course number is indicated in the course description).

Old Course Numbers

Course numbers in use prior to the 1969-70 academic year are shown in parentheses at the end of the course title line. Where no old number is shown, the course was not offered prior to the change to the current numbering system.

TERM OF OFFERING OF COURSES

Designations as to when courses *normally* will be offered are:

- F**, offered first semester only
- S**, offered second semester only.
- F-S**, offered in regular sequence during the academic year.
- F or S**, offered any semester.
- F & S**, offered each semester
- SS**, offered in summer session only.

CREDIT DESIGNATIONS

In parentheses, immediately following each course title, is the number of credits authorized for each course. * Typical credit designations follow:

(3 cr), three semester credits — for a double numbered course (101-102) the three credits apply to each semester.

(1-3 cr), one to three credits.

(3 cr; 2 cr), three credits first semester; two credits second semester.

(3 cr, max 12) three credits each semester, and may be repeated through successive semesters until the maximum of twelve credits has been earned (for a course with more than one number, e. g., 301-302, the maximum is over-all and applies to the combined numbers).

(cr arr), credits to be arranged.

(1-3 cr, max arr), one to three credits each semester— may be taken for one to three credits through successive academic terms without restriction as to maximum.

CREDITS IN SUBTITLED COURSES

Many courses include subtitles. Each subtitle is an individual course and the credits specified in the main title line apply to the separate subtitled courses. PolSc 507-508 illustrates this procedure:

507-508 Seminar (2-4 cr, max 24) F-S (207-208)

- (a) Public Administration
- (b) American Foreign Policy
- (c) Contemporary American Politics
- etc.

PolSc 507a, Seminar in Public Administration, is an individual course which may be listed in the official time schedule as a variable- credit course (2-4 cr), or assigned a definite number of credits, not exceeding the four authorized. A student may continue to enroll in 507a until he has earned the four credits permitted in that one subtitle. The same is true for 508a; however, a student is limited to a maximum of 24 credits in PolSc 507-508, all registrations combined.

There are certain courses in which a particular subtitle may be taken during successive terms without any maximum number of credits being specified. Mus 101b, Applied Music (Piano), is such a case. Note that the course description for Mus 101 contains the statement, "May be repeated for credit."

OTHER ABBREVIATIONS USED IN COURSE DESCRIPTIONS

Actg, accounting.

Ag, agriculture.

AgBiC, agricultural biochemistry.

AgEcon, agricultural economics.

(Continued on next page)

*With permission, students may register in a particular course for fewer credits than indicated for that course in the time schedule. See the beginning of the mathematics course section for instances that require this in certain sequences. Likewise, during summer session and similar circumstances, departments of instruction may list courses in the official time schedule for fewer credits than the number authorized by this catalog.

OTHER ABBREVIATIONS (Continued)

- AgEd**, agricultural education.
AgE, agricultural engineering.
Air, Air Force ROTC.
Alt/yrs, offered alternate years. The academic year to be offered is shown.
Ani, animal industries.
Anthro, anthropology.
Arch, architecture.
Army, Army ROTC.
Art, art.
AS, animal science.
Bact, bacteriology.
Biol, biology.
Bot, botany.
Bus, business.
BusEd, business and education.
ChE, chemical engineering.
Chem, chemistry.
CE, civil engineering.
Comm, communications.
Coreq, corequisite.
Cr, credit.
Dem, demonstration.
Disc, discussions.
Div, division.
Drama, drama.
DS, dairy science.
Econ, economics.
Ed, education.
EE, electrical engineering.
Engr, engineering (general)
Equiv, equivalent.
ES, engineering sciences.
Eng, English.
Ent, entomology.
Fr, French.
FS, food science.
FL, foreign languages.
For, forestry.
Genet, genetics.
Geog, geography.
Geol, geology.
Ger, German.
Gr, Greek.
Grad, graduate.
Hist, history.
HEc, home economics.
Hon, honors.
Hr, hour.
Hydro, hydrology.
IEd, industrial education.
Inter, interdisciplinary studies.
Ital, Italian.
Jour, journalism.
Jr, junior.
Lab, laboratory.
Law, law.
Lec, lecture.
LibSc, library science.
Math, mathematics.
Max, maximum.
ME, mechanical engineering.
Met, metallurgy.
Min, mining engineering.
Museo, museology.
Mus, music.
Navy, Naval ROTC.
NE, nuclear engineering.
OAd, office administration.
Phil, philosophy.
Photo, photography.
PE, physical education.
Perm, permission of instructor
Perm of dept, permission of departmental or subject-field administrative officer.
Phys, physics.
PISc, plant sciences.
PolSc, political science.
Prereq, prerequisite.
PS, poultry science.
Psych, psychology.
Rad-TV, radio-television.
Rec, recitation.
Rel, religion.
Russ, Russian.
SocSc, social science.
Soc, sociology.
Soils, soils.
Soph, sophomore.
Span, Spanish.
Sp, speech.
VS, veterinary science.
VocEd, vocational education.
Wk, week.
Yr, year.
Zool, zoology.

PREREQUISITES

In the description of courses, prerequisite courses in the SAME subject field do not carry the subject abbreviation with the course number. Prerequisite courses in a DIFFERENT subject area do carry the subject abbreviation with the number.

ACCOUNTING (Actg)

Associate Professor Clark; Assistant Professor Reynolds.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

131-132 Principles of Accounting (3 cr) F & S (Bus 31-32)

Accounting for individual proprietorships, partnerships, corporations. Two lec and one 2-hr lab per wk.

231-232 Intermediate Accounting (3 cr) F & S (Bus 91-92)

Content, construction and interpretation of financial statements; corporation accounting. Prereq: 132.

281 Financial and Administrative Accounting (3 cr) F & S (Bus 81)

For non-majors, not open for credit to majors. Structure of accounting theory, using information in financial statements, accounting for management control and in making decisions. Prereq: 132.

331-332 Advanced Accounting (3 cr) F-S (Bus 187-188)

331: partnerships, fiduciary, estate, trust, government and institutional accounting. 332: installment sales, agency, branch, consolidation, mergers and holding company accounting; foreign currencies and price-level changes. Prereq: 232.

385 Costs: Concepts and Methods (3 cr) F (Bus 185)

Methods of specific order, process and standard costing, overhead allocation, joint product costing. Prereq: 132.

395 Fundamentals of Accounting (4 cr) F

Primarily for students in the Master of Business Administration program. Financial statements, limitation of data, partnership and corporate accounting, financial and cost analysis and interpretation. Prereq: perm.

483-484 Federal and State Taxes (3 cr) F-S (Bus 183-184)

483: income tax laws; tax liability; returns. 484: estate, inheritance, gift tax laws; social security, unemployment, excise and use taxes; special problems. Prereq: 132.

486 Costs: Analysis and Controls (3 cr) S (Bus 196)

Cost analysis and control methods as a basis for planning, cost control and decisions.

R490 Advanced Accounting Problems (3 cr) F & S (Bus 190)

Problems in professional examinations given by the American Institute of Certified Public Accountants; problem analysis and development of working papers. Prereq: perm.

491 Accounting Theory (3 cr) S (Bus 293)

History; major areas of controversy in principles and theories.

493 Auditing Theory (3 cr) F (Bus 191)

Nature, importance, basis of the audit report; standards and procedures.

505 Seminar (2-4 cr, max 8) F & S (Bus 205-206)

Prereq: perm.

586 Costs: Relevance, Measurement and Applications (3 cr) F (Bus 285)

Development of cost control. Prereq: perm.

AGRICULTURE (Ag)

Professor Everson.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

321 Biometry (3 cr) F (121)

Also offered as For 307. 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. (EVERSON).

400 Senior Seminar (1 cr) F & S

406 Statistical Research Methods (3 cr) S (206)

Biometrical principles used to analyze and interpret research problems; variance, correlation, multiple regression, covariance, principles of experimental design. Prereq: 321 or perm. (EVERSON)

507 Experimental Design (3 cr) F (207)

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. (EVERSON)

510 Professional Problems (1-4 cr) F & S (201-202)

Primarily for students in the M.Ag. program. Professional paper required. Prereq: perm.

AGRICULTURAL BIOCHEMISTRY (AgBiC)

Alvin C. Wiese (Head, Agricultural Biochemistry and Soils). Professors LeTourneau, Wiese; Associate Professor Muneta.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

205 General Agricultural Biochemistry (4 cr) F (80)

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. (LeTOURNEAU)

400 Undergraduate Research (1-2 cr, max 4) F & S (151)

Individual study in animal or plant biochemistry. Prereq: sr standing and perm.

422 Food Chemistry and Analysis (3 cr) S (128)

Alt/yrs 1970-71. Also offered as FS 422 and HEC 472. Two lec and one 3-hr

lab per wk. (Lab A is for home economics and food and nutrition majors—problems in cookery; lab B is for food science and other majors.) Prereq: Chem 253 or 256, 275-276, or equiv. (MUNET A)

- 431 Chemistry and Physiology of Vitamins (3 cr) F (131)**
Alt/yrs 1969-70. Includes their relation to human and animal nutrition. Prereq: course in biochemistry. (WIESE)
- 461 Plant Biochemistry (3 cr) F (161)**
Alt/yrs 1969-70. Composition and metabolism of higher plants. Prereq: course in biochemistry. (LeTOURNEAU)
- 462 Plant Biochemistry Laboratory (1 cr) F (162)**
Methods and techniques for analyzing plant materials. One 3-hr lab per wk. Prereq or coreq: 461, Chem 253 or 256, or equiv.
- 490 Proseminar (1 cr, max 2) F & S (153)**
Prereq: jr standing and perm.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 505 Advanced Laboratory Techniques (4 cr) F (205)**
Also offered as Soils 505. Chromatography, spectrophotometry, manometric and other special techniques. Two lec and two 3-hr labs per wk. Prereq: Chem 253 or 256, and perm.
- 531 Enzymes and Intermediary Metabolism (3 cr) F (231)**
Alt/yrs 1970-71. Chemistry of enzymes and intermediary metabolism of carbohydrates, lipids and proteins. Prereq: Chem 481 or equiv. (WIESE, LeTOURNEAU)
- 532 Enzymology Laboratory (1 cr) F (232)**
Alt/yrs 1970-71. One 3-hr lab per wk. Prereq or coreq: 531.
- 581 Carbohydrate and Lipid Chemistry (3 cr) F (281)**
Alt/yrs 1970-71. See Chem 581 for description.
- 582 Amino Acids and Protein Chemistry (3 cr) S (282)**
Alt/yrs 1969-70. See Chem 582 for description.
- 590 Seminar (1-2 cr, max 4) F & S (203)**
- 600 Doctoral Research and Dissertation (cr arr) F & S (300)**

AGRICULTURAL ECONOMICS (AgEcon)

William E. Folz (Head). Professors Folz, Lindeborg; Associate Professors Marousek, Long, Withers; Assistant Professor Araji.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 101 Agriculture and Its Social and Economic Environment (3 cr) F**
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. (FOLZ)

- 208 Farm Management (3 cr) S (108)**
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.
- 219 Marketing Farm Products (3 cr) F (119)**
Marketing functions, agencies and services; demand, supply, cost and price theories. (MAROUSEK)
- 332 Economics of World Agriculture (3 cr) S (132)**
The agricultural economy and its problems of the various countries of the world; food production, consumption and distribution problems. (WITHERS)
- 353 Agricultural Prices (3 cr) S (153)**
Factors affecting farm commodity prices; production cycles, price variability, price analysis. Prereq: Econ 252. (WITHERS)
- 356 Agricultural Programs and Policies (3 cr) S (156)**
Development of national and state economic policies and programs applied to agriculture; current price, income and credit policies; evaluation of success or failure in accomplishing objectives. (FOLZ)
- 361 Farm Appraisal (3 cr) S (161)**
Methods; factors affecting land value; valuations for loans, sale, assessment, condemnation and other purposes; procedures used by government and commercial agencies. Two 1-day field trips.
- 391 Agricultural Business Management (3 cr) F (191)**
Economic theory of the firm; 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. (ARAJI)
- 451 Land Resource Economics (3 cr) F (150)**
Land utilization, characteristics and classification; agricultural, forest and mineral lands; factors affecting land use; ownership and tenure, taxation, values, credit and government policies. (WITHERS)
- 477 Economics of Developing Countries (3 cr) F (177)**
See Econ 477 for description. (FOLZ)
- 481 Agricultural Market Analysis (3 cr) S (181)**
Markets and market structures; types of competition and market power with implications for producers of farm products. Prereq: 219 or perm. (MAROUSEK)
- 493 Agricultural Production Economics (3 cr) F (194)**
Economic theory related to agricultural production at the enterprise, firm and industry levels. (LINDEBORG)
- 494 Mathematical Analysis Applied to Agricultural Economics (3 cr) (194)**
Quantitative methods in relating mathematical analysis to economic theory; statistical techniques applied to economic activities. Prereq: perm. (LONG)
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 507 Research Methodology (3 cr) F (207)**
Also offered as Econ 507. Theoretical background of the scientific method applied to economic research organization, procedures, reporting, and evaluation of research. Prereq: perm. (MAROUSEK)

- 508 Problems in Production Economics Research (3 cr) S (208)**
Objectives and techniques; application of probability models and their evaluation employing a number of econometric techniques. Prereq: 193 or perm. (LINDEBORG)
- 509 Dynamics of Agricultural Business Management (3 cr) F (209)**
Economic analysis and operations research methods; procurement, processing and marketing integrated within competitive and non-competitive economic models; major areas of risks and uncertainties. Prereq: perm. (ARAJI)
- 521 Advanced Microeconomic Theory (3 cr) F (221)**
See Econ 521 for description.
- 522 Advanced Aggregate Economics (3 cr) S (222)**
See Econ 522 for description.
- 523 Advanced Monetary Theory (3 cr) S (223)**
See Econ 523 for description.
- 524 Theory of Economic Development (3 cr) S (224)**
Also offered as Econ 524. Macro-dynamic theory as it relates to economic growth; theories of economic development; conditions for economic development; process of economic development and its significance to new areas and to underdeveloped regions. (FOLZ)
- 525 Introduction to Econometrics (3 cr) F (225)**
Also offered as Econ 525. Mathematical formulation of theoretical economic models which serve as the basis for empirical investigations of economic behavior. Prereq: perm. (LONG)

AGRICULTURAL EDUCATION (AgEd)

Dwight L. Kindschy (Head); Professor Kindschy; Associate Professors Cvancara, Haynes, McProud.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 348 Extension Methods (2 cr) S (150)**
Methods used in the field by county agents, college faculty members, extension specialists and teachers of vocational agriculture. (McPROUD)
- 351 Principles of Vocational Education (2 cr) F (151)**
Also offered as VocEd 351. History, meaning, aims, administration and place in the schools. (CVANCARA)
- 352 Beginning Methods (2 cr) S (152)**
Problems, methods and materials. (KINDSCHY)
- 453 Advanced Methods and Curricula (3 cr) F (153)**
Continuation of 352. Prereq: sr standing.
- 454 Methods of Teaching Farm Shop (2 cr) S (154)**
Application of efficient organization and management practice in teaching farm mechanics. (CVANCARA)

- 457 Adult Agricultural Education Methods (2 cr) F (157)**
Methods in organizing and conducting young farmer and adult farmer classes. (CVANCARA)
- 458 Supervision of the FFA (2 cr) S (158)**
Includes community work and other problems not covered in 453. (CVANCARA)
- 460 Practice Teaching (1-9 cr) F & S (155-156)**
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 or payment of the late registration fee. Prereq: 352 and perm of dept.
- 470 Proseminar (1 cr, max 2) F & S (161-162)**
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 550 Seminar (1-6 cr) F & S (251-252)**
- 557 Problems in Teaching Vocational Agriculture (1-3 cr, max 9) F & S (257)**
Methods and new developments; may include attendance at summer conference. Consult the summer school bulletin for special emphasis when offered in the summer. Prereq: perm.
- X558 Directed Planning Workshop (1-6 cr) X (X258)**
Primarily for teachers of vocational agriculture. Curriculum construction, methods, course content, and current trends in agriculture.
- 561 Adult Programs in Agriculture (1-3 cr) F or S (261)**
Philosophy, development and status of adult education; current subject matter and organization in relation to progressive adult programs in Idaho and the Northwest.
- 562 Advanced Methods in Farm Mechanics (1-3 cr) F or S (260)**
Objectives, teaching methods and current trends in farm mechanics programs in high schools and adult classes.
- 580 Professional Problems (1-6 cr) F & S (281-282)**
Directed independent study. Prereq: perm.
- 583 Program Planning in Vocational Agriculture (1-3 cr) F or S (283)**
Emphasis on preparation for off-farm agricultural occupations.

AGRICULTURAL ENGINEERING (AgE)

G. L. Corey (Department Chairman), Professors Bloomsburg, Corey, Martin; Associate Professors Dixon, Fitzsimmons, Moden, Williams, Works; Assistant Professor Molnau.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

COURSES FOR NON-ENGINEERING STUDENTS

- 101 Oxy-Acetylene Welding (1 cr) F & S (35)**
Principles of operation, use and care of oxy-acetylene welding and cutting equipment. One 3-hr lab per wk. Prereq: perm.

- 107 Arc Welding (1 cr) F & S (37)**
Principles of operation, use and care of arc welding equipment. One 3-hr lab per wk. Prereq: perm.
- 112 Engineering Applications in Agriculture (3 cr) S (4)**
Engineering principles and their applications in agriculture; farm machinery and tractors, buildings, materials handling, processing, irrigation, and drainage.
- 302-303 Agricultural Education Shop I-II (3 cr) S-F (103, 138)**
Primarily for agricultural education students. 302: care and use of farm shop tools and equipment. 303: selection and operation of farm power units and machinery; service and repair of engines, electric motors and machinery. One lec and two 3-hr labs per wk. Prereq: perm.
- 305 Agricultural Machinery and Equipment (2 cr) F (121)**
Application, operation characteristics, adjustments, servicing, and care of farm equipment; materials of construction, heat treatment, power transmission, and hydraulic systems.
- 306 Agricultural Structures and Environmental Systems (2-3 cr) S (114)**
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.
- 309 Gas Engines and Tractors (2-3 cr) F (131)**
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.
- 312 Electric Power Application (3 cr) S (132)**
For heat, light and power, circuits and wiring; selection of motors and controls; use of electricity for lighting, refrigeration and ventilation. Two lec and one 3-hr lab per wk.
- 315 Irrigation and Drainage (2-3 cr) F (161)**
Irrigation, water resources, current irrigation developments, water rights, conveyance and measurement, pumps and pumping, soil-water-plant relationships, irrigation methods, surface and sub-surface drainage. Two lec or two lec and one 3-hr lab per wk.

COURSES FOR ENGINEERING STUDENTS

- 241 Introduction to Agricultural Engineering (1 cr) F (51)**
Survey of the field; applications of engineering principles to agricultural problems. One 2-hr lab per wk.
- 242 Agricultural Engineering Analysis (3 cr) S**
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.
- 351 Hydrology (2 cr) F (160)**
Weather influence on the hydrologic cycle; precipitation, evaporation and transpiration, infiltration and runoff phenomena; runoff and flood relationships; theory of groundwater flow.
- 352 Fundamentals of Irrigation and Drainage (3 cr) S (163)**
Soil-water-plant relationships; consumptive use, irrigation methods and efficiencies; water measurement, pumps and pumping; current water resource developments and water rights. Prereq: Math 200.

- 362 Environmental Systems (3 cr) S**
Chemical, mechanical, electrical and thermal characteristics of biological materials and systems in relationship to the analysis and synthesis of environmental control systems; environmental systems for animal production, crop storage and plant growth. Prereq: Phys 211; coreq: ES 321.
- 443 Agricultural Engineering Instrumentation Laboratory (2 cr) F**
Equipment and techniques; lab techniques and data analysis. One lec and one 3-hr lab per wk. Prereq: sr standing.
- 449 Elements of Structural Engineering (4 cr) F (129)**
Design of steel and timber members and connections, reinforced concrete beams, slabs, columns, walls, footings; introduction to pre-stressed concrete. Prereq: ES 340.
- 452 Irrigation and Drainage Design (3 cr) S (168)**
Planning, layout and design of systems; ditches and canals, pipelines, sprinkler systems, water control structures, and surface and sub-surface drainage systems. Two lec and one 2-hr lab per wk. Prereq: 352.
- 454 Drainage Theory (2 cr) S (167)**
Fluid mechanics of saturated flow through soils; introduction to unsaturated flow; procedures for and construction of sub-surface drains; reclamation of saline and alkali soils. Prereq: ES 320.
- 462 Materials Handling and Processing (2 cr) S (154)**
Engineering elements of agricultural materials handling and processing; heat transfer; drying, cooling and conditioning of materials; automatic control of processing systems; design of systems for handling. Prereq: 362.
- 471 Energy Conversion in Agricultural Systems (2 cr) F**
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. Prereq: ES 321.
- 472 Agricultural Machine Design (3 cr) S (123)**
Engineering analysis of machines and basic agricultural operations and systems requiring machine functions; force and functional analysis, elements of design; machine and system efficiency; economic considerations. Two lec and one 3-hr lab per wk. Prereq: ES 340.
- 474 Fluid Power and Control Systems (2 cr) S**
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.
- 480 Agricultural Engineering Projects (1-3 cr) F & S (148)**
Supervised individual study. Prereq: perm.
- 491 Seminar (0 cr) F & S (105-106)**
Professional aspects of the field. Prereq: sr standing.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 540 Seminar (1 cr, max 2) F & S (201-202)**
Reports on research and current developments.
- 541 Measurement and Control Techniques (3 cr) F or S**
Methods and instruments used in research; electronic instrumentation; design

of control systems and electronic measurement of physical quantities encountered in agricultural research.

- 551 Advanced Hydrology (3 cr) F or S (209)**
Hydrologic processes as they relate to water control; methods of evaluating distribution factors: precipitation, runoff, evaporation, transpiration and infiltration.
- 554 Open Channel Hydraulics (3 cr) F or S (210)**
Hydraulics of uniform and varied flow in open channels with fixed and movable beds.
- 555 Natural Channel Flow (2-3 cr) F or S (211)**
Hydraulics of non-uniform flow in irregular channels; unsteady flow, flow routing and density currents.
- ID558 Fluid Mechanics of Porous Materials (3 cr) F or S (220)**
Statics and dynamics of multi-flow systems in porous materials; properties of porous materials, steady and unsteady flow.
- 562 Environmental Systems Design (3 cr) F or S**
Analysis and design of structures and environmental systems for livestock production, crop processing and storage.
- 563 Farmstead Systems Design (3 cr) F or S (214)**
Farmstead operation from an engineering standpoint as it applies to materials handling, farmstead and building layout, and economic efficiency.
- 572 Advanced Agricultural Machinery Design (2-3 cr) F or S (205-206)**
Theory and design; survey of engineering developments and research in the farm machinery and equipment field.
- 580 Directed Study (1-3 cr, max 8) F & S (237-238)**
Group or individual study. Prereq: perm.
- 589 Water Resources Seminar (1 cr) F or S (289-290)**
See Inter 589 for description.
- 600 Doctoral Research and Dissertation (cr arr) F & S (300)**
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AIR FORCE ROTC (Air)

Wilbert H. Richarz (Head), Professor; Lt.-Col. Richarz. Assistant Professors: Capt. Davis, Capt. Woodbury.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 101 Nature of Military Power in the United States (1 cr) F (10)**
Defense establishment; the USAF. 2 hrs per wk; one 1-day field trip.
- 102 Strategic Offensive and Defensive Forces (1 cr) S (20)**
Forces composition; use and effect of nuclear weapons; mission, weapons systems and command/control of SAC; composition and role of defensive forces. 2 hrs per wk; one 1-day field trip.
- 201 General Purpose and Aerospace Support Forces (1 cr) F (30)**
Unified commands; role of TAC in limited war and counter-insurgency actions;

contributions of USAF commands whose primary role is aerospace support. 2 hrs per wk; one 1-day field trip.

202 Trends of World Military Power (1 cr) S (40)

Conflict between democracy and communism; alliance and alignments; contemporary military thought. 2 hrs per wk; one 1-day field trip.

301 Growth and Development of Aerospace Power (3 cr) F (110)

Nature of war; airpower development in the U. S.; mission and organization of the Department of Defense; USAF concepts, doctrine, employment. 3 lec per wk; plus 2 hrs per wk for first 7 ½ wks; one 2-day field trip.

302 Astronautics and Space Operations (3 cr) S (120)

Aerospace power; programs, vehicles, systems, problems in space exploration. 3 lec per wk; plus 2 hrs per wk for last 7 ½ wks; one 1-day field trip.

401 Air Force Leadership (3 cr) F (130)

Military professionalism; responsibilities; theory of leadership; discipline; human relations; military justice. 3 lec per wk; plus 2 hrs per wk for first 7 ½ wks; one 2-day field trip.

402 Air Force Management (3 cr) S (140)

Personnel policies; channels of communication; principles and functions of management; command-staff organization. 3 lec per wk; plus 2 hrs per wk for last 7 ½ wks.

465 Air Force Flight Instruction Program (0 cr) F & S (165)

Open to cadets who qualify to become Air Force pilots. Ground school, plus 36 ½ hrs of flying time (20 dual; 16 ½ solo). Cadets receive private pilot's license upon meeting FAA requirements. Prereq: 301-302.

ANIMAL INDUSTRIES (AnI)

T. Donald Bell (Head, Animal Science). Professors Bell, Christian; Associate Professors Hemstrom, Hodgson, Orme; Assistant Professors Bull, Farlin; Instructors Gibson, Slyter.

Richard H. Ross (Head, Dairy Science). Professor Ross; Associate Professor Montoure; Assistant Professor Sasser; Instructor Woodruff.

Charlie F. Petersen (Head, Poultry Science). Professor Petersen.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

COOPERATING DEPARTMENTS: The following courses are offered by the Departments of Animal Science, Dairy Science and Poultry Science. Students may major in any one of the three departments.

109 Principles of Animal Science (4 cr) F

Scope and potential of the livestock industry; types and breeds of livestock and poultry, inheritance, physiology, nutrition, managements and classification, and grading of their products. Three lec and one 2-hr lab per wk.

152 Livestock Management Practices (1 cr) S (AS 52; DS 76)

Methods of identification, registration, preparation for exhibition and marketing, and other livestock management practices. One 3-hr lab per wk.

- 204 Live Animal Selection and Carcass Evaluation (3 cr) S (AS 54, 64)**
 Evaluation and selection for breeding, market and other uses; visual and objective appraisal, and other newly developed techniques. One 2-day, two 1-day, and four ½-day field trips, or equiv time. One lec and two 3-hr labs per wk. (HODGSON, ORME)
- 263 Meats (3 cr) F (AS 63)**
 Slaughtering, cutting, wrapping, and preservation; appraisal of the live animal and carcass as to quality, grade, yield, and economic value. One 1-day field trip. Two lec and one 3-hr lab per wk. (ORME)
- 304 Meat Animal-Carcass Evaluation (3 cr) S (AS 54, 64)**
 Live market animal evaluation from the standpoint of quality and quantity of meat; visual and objective measures of carcass traits associated with cutability and palatability; application of federal grade standards. One 2-day, two 1-day, and four ½-day field trips, or equiv time. (ORME, HODGSON)
- 305 Principles of Nutrition (3 cr) F & S (AS 105)**
 Proteins, carbohydrates, fats, minerals and vitamins; physiology of digestion, absorption and metabolism of nutrients and the relationships of enzymes and hormones in these phenomena; lab feeding experiments. Prereq: AgBiC 205 or equiv. (BULL)
- 306 Applied Animal Nutrition (4 cr) S (AS 106; DS 120; PS 103)**
 Application of the principles of nutrition to feeding domestic animals and poultry; evaluating feed-stuffs, comparisons of feeds and animal requirements. Three lec and one 2-hr lab per wk. (FARLIN)
- 308 Incubation and Hatchery Management (2 cr) S (PS 108)**
 Alt/yrs 1969-70. Avian embryonic development; physiology, nutrition and morphology factors influencing hatchability; incubation methods and hatchery management. One 1-day field trip. (PETERSEN)
- 311 Advanced Livestock and Meat Evaluation (1 cr, max 2) F (AS 111, 124)**
 Live animal and carcass evaluation preparatory to intercollegiate live animal and carcass contests; participation in two intercollegiate contests. Five 1-day and one 3-day field trips in addition to contests, or equiv time. (HODGSON, ORME)
- 321 Beef Cattle Science (3 cr) F (AS 114)**
 Breeding, feeding, management and marketing of commercial and purebred cattle. (HODGSON)
- 322 Sheep Science (3 cr) S (AS 115)**
 Alt/yrs 1970-71. Breeding, feeding, management and marketing of commercial and purebred sheep and wool studies. Two lec and one 2-hr lab per wk. (BELL)
- 323 Dairy Cattle Management (3 cr) F (DS 120)**
 Alt/yrs 1970-71. Operation of modern large dairy farms. Two lec and one 2-hr lab per wk. (ROSS)
- 324 Horse Production (3 cr) S (AS 116)**
 Alt/yrs 1969-70. Physiology, anatomy and function of the horse as related to nutrition, breeding and conformation; practical horse management. One ½-day field trip. Two lec and one 2-hr lab per wk. Prereq: jr standing. (HEMSTROM)
- 326 Swine Science (3 cr) S (AS 117)**
 Alt yrs/1969-70. Breeding, feeding and management of swine; application of the sciences of nutrition, physiology and genetics to the development of efficient swine enterprises. (CHRISTIAN)

- 328 Commercial Poultry and Egg Production (3 cr) S (PS 102)**
 Alt/yrs 1970-71. Modern housing, equipment, labor saving and efficiency factors in flock management, production costs and returns. One 1-day field trip. Two lec and one 2-hr lab per wk. (PETERSEN)
- 334 Meat Technology (3 cr) S (AS 134; FS 134)**
 Alt/yrs 1970-71. Also offered as FS 334. Fabricating and pricing of wholesale and retail cuts of meat; technology of fresh and processed meats, sausage making, lard rendering and quality control. One 1-day field trip. Two lec and one 3-hr lab per wk. (ORME)
- 351 Meats (1 cr) F (AS 56)**
 Alt/yrs 1969-70. Also offered as FS 351. Factors affecting the quality and palatability of meat; identification and selection of wholesale and retail cuts of meat. For home economics students. One 1-day field trip. (ORME)
- 400 Undergraduate Research (1-2 cr, max 4) F & S**
- 410 Production and Processing Practices (1 cr, max 2) F & S (AS 120)**
 Livestock, dairy and poultry production and processing practices and facilities. One 7-day field trip or equiv time.
- 421 Population Genetics (3 cr) F**
 Also offered 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. (CHRISTIAN)
- 422 Animal Breeding (3 cr) S (AS 112; DS 108; PS 105)**
 Also offered as Genet 422. Application of genetic principles to the improvement of farm animals; effects of inbreeding, outbreeding, assortative and disassortative mating on animal populations; selection for economically important traits; heritability, genetic correlations, use of selection indexes. Prereq: Genet 314 or equiv. (CHRISTIAN)
- 433 Poultry Products Technology (3 cr) F (PS 101)**
 Alt/yrs 1970-71. Processing, grading, packing and storage of eggs and poultry, factors influencing quality and product utilization. One 1-day field trip. Two lec and one 2-hr lab per wk. (PETERSEN)
- 450 Proseminar (1 cr, max 2) F & S (AS 157-158; DS 129-130)**
 Special topics in animal industries.
- 451 Endocrine Physiology (3 cr) F**
 Also offered 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. (SASSER)
- 452 Physiology of Reproduction and Lactation (4 cr) S (DS112, 122)**
 Physiology of reproduction of animals and the structure, growth, development and physiology of the mammary gland. Three lec and one 2-hr lab per wk. (SASSER)
- 500 Master's Research and Thesis (cr arr) F & S (AS, DS 300)**
- 511 Animal Nutrition (3 cr) F (AS 221)**
 Biochemical and physiological aspects of nutrition of higher animals and man; function and metabolism of nutrients. Prereq: perm. (BULL)

- 512 Energy Metabolism (3 cr) S (AS 222)**
Energy utilization dealing with techniques of calorimetry, biochemistry of intermediary energy transfers, the effects of environmental factors of energy exchanges and estimation of the energy value of feeds for animals. Prereq: perm. (FARLIN)
- 513 Microbiology and Physiology of Ruminant Nutrition (3 cr) F (DS 226)**
Physiology and microbial aspects of ruminant digestion and their influence on the metabolism of extra-ruminal tissues; interpretation of nutritive requirements in terms of rumen microbial activities and evaluation of research techniques. Prereq: perm. (FARLIN)
- 514 Physiology of Non-Ruminant Nutrition (3 cr) S (AS 224, PS 228)**
Physiology of digestion, absorption and metabolism of nutrients in monogastric animals and birds; development of nutritive requirements and nutritive interrelationships. Prereq: perm. (BULL)
- 522 Statistical Genetics (3 cr) S (AS 242)**
Also offered 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. (CHRISTIAN)
- 550 Seminar (1-3 cr, max 6) F & S (AS 203-204; DS 229-230)**
- 551 Advanced Endocrine Physiology (3 cr) F (DS 251)**
Biochemical and physiological properties of hormones and lab techniques involved in experimental endocrinology. Two lec and one 2-hr lab per wk. Prereq: 451, Chem 482. (SASSER)
- 552 Experimental Reproductive Physiology (3 cr) S (AS 252)**
Lab techniques used in physiology of reproduction research; comparative and differential fertility, effect of endocrine deficiencies and excesses on fertility and sterility, experimental control of reproduction in farm animals. Prereq: 451, Zool 412. (CHRISTIAN)
- 572 Meat Methodology (3 cr) S (AS 213)**
Physical, histochemical, enzymatic and microbiological properties of meat and the relationship of these traits and carcass components to live animal and its environment. One lec and two 3-hr labs per wk. (ORME)

ANTHROPOLOGY (Anthro)

Roderick Sprague (Head, Sociology Anthropology). Associate Professor Sprague; Assistant Professor Rice.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

PREREQUISITES FOR UPPER-DIVISION COURSES: Ordinarily 3 credits in lower-division courses in anthropology are required for registration in upper-division courses in this field; exceptions by permission.

- 110 Introduction to Physical Anthropology and Archaeology (3 cr) F or S (1)**
Theories, methods, findings as they relate to human paleontology, prehistory and racial types.

- 120 Introduction to Social Anthropology (3 cr) F or S (2)**
Theories, methods, findings as they relate to human culture, social organization and language.
- 220 Comparative Social Systems (3 cr) F or S (73)**
Emphasis on simpler societies.
- 225 Aboriginal North American Indian (3 cr) F or S (119)**
Origins, physical types, languages, cultures of native populations of the Americas.
- 320 Peoples of the World (3 cr) F or S (118)**
Simpler societies of Eurasia, Africa, Americas, Australia and islands of the Pacific.
- 321 Culture and Personality (3 cr) F or S (116)**
Theories, methods, findings of the interrelationship between the individual and his culture.
- 322 Race Problems (3 cr) F or S (158)**
Racial, ethnic and minority groups; their special problems in the U. S.
- 325 Indians of Idaho (3 cr) F or S (115)**
Aboriginal American Indian societies of northwestern North America; emphasis on Idaho. Three 1-day field trips.
- 330 World Prehistory (3 cr) F or S (123)**
Prehistoric cultures of Old and New Worlds; techniques of excavation; methods of archaeological analysis.
- 401 Anthropological Field Methods (1-8 cr) F & S (125)**
Supervised field training in archaeology and/or social anthropology.
- 421 Belief Systems of Simpler Societies (3 cr) F or S (137)**
Theories, methods, findings of comparative anthropological study; emphasis on religion.
- ID425 Contemporary North American Indian (3 cr) F or S (136)**
Acculturation and current state of American Indian societies; emphasis on U. S. and Canada. Three 1-day field trips.
- 427 Peoples of Africa (3 cr) F or S (120)**
Native societies; contemporary problems arising from European penetration; emergence of native states.
- 435 North American Prehistory (3 cr) F or S (124)**
Theories, methods, findings of prehistoric North American archaeology.
- WS480 General Linguistics (3 cr) F or S (150)**
WSU 450. Anthropological uses of linguistic data, language structure.
- WS481 Field Methods in Linguistics (3 cr) S (153)**
WSU 453. Prereq: 480.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 501 Anthropological Field Methods (1-8 cr) F & S (225)**
Individual field work in approved areas. Prereq: perm.
- 503-504 Seminar (2-4 cr) F-S (207-208)**
(a) Methods in Anthropological Research

(b) Anthropological Theory
(ID503c; 504c) Acculturation
Prereq: perm.

505-506 Directed Readings (1-3 cr) F-S (209-210)

(a) Anthropological Theory (c) Ethnohistory
(b) Applied Anthropology (d) Specialized Fields
Prereq: perm.

ID531 Historical Archaeology (3 cr) F or S (205)

Excavation and analysis of historic archaeological sites, including acculturation-
al implications. Three 1-day field trips. Prereq: perm.

WS571 Interpretation of Paleoenvironments (3 cr) F (246)

WSU 546. Pleistocene paleoclimatic changes as inferred from sediments, land
forms, fossil soil of archaeological importance. Two lec and one 3-hr lab per wk.
Prereq: perm.

WS572 Physical Stratigraphy of Archaeological Sites (3 cr) S (247)

WSU 547. Recognition, description, sampling, analysis of sediments typically
found with human cultural materials. Two lec and one 3-hr lab per wk. Prereq:
perm.

ID573 Paleoecology (3 cr) F or S (248)

See Geol ID548 for description.

ARCHITECTURE (Arch)

Robert E. McConnell (Head, Art and Architecture), Professors Bartell, McConnell,
Sloan; Associate Professors Blanton, Dotts, Snyder; Assistant Professors Ber-
geson, Cichanski; Instructor Berg.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

155-156 Introduction to Architecture (3 cr) F-S (11-12)

Design theory; fundamentals of programs and systems; graphics, two and three
dimensional studies in space, form and color. One lec and two 3-hr labs per wk.

255-256 Integrative Problems I (2-5 cr) F-S (53-54)

Fundamental form, space and systems concepts in architecture, landscape archi-
tecture and interior design. 6-15 lab periods per wk.

263 Programs and Systems I (2 cr) F

Problem programming employing applicable computer techniques; systems in-
volving geometry and space. 6 lab periods per wk.

265-266 Materials and Methods (2 cr) F-S (55-56)

Materials, elements and techniques of building; force systems, their resolutions
and applications to the building frame. Integrative with 255-256.

275 History of Ancient Architecture (2 cr) F (139)

Prehistoric, Egyptian, Western Asian, Aegean, Greek, and Roman periods.

276 History of Medieval Architecture (2 cr) S (139)

Early Christian, Byzantine, Islamic, Romanesque, and Gothic periods.

283-284 Landscape Architecture I-II (3 cr) F-S (173)

283: visual analysis and portrayal of landscape character; a study series; physi-
cal landscape analysis incorporates plant study and planting design; grading and

earthwork introduced; terminal project combines these elements in an actual site study. 284: fundamental landscape planning continues as applied to larger scale recreation and housing arrangement; soils, vegetation and other ecological design determinants. One lec and two 3-hr labs per wk; one 1-day field trip second semester. Prereq: 283 for 284.

353-354 Landscape Architecture III-IV (3 cr) F-S (174)

353: development of a spatial rotation system and visual analysis of the landscape; plant study and planting design; grading problems; terminal project combines these elements in an actual site study. 354: fundamentals, analysis and design applied to larger scale, recreation and suburban development; soils, vegetation, other ecological criteria as design determinants. One lec and two 3-hr labs per wk; one 1-day field trip second semester. Prereq: 284 for 353; 353 for 354.

355-356 Integrative Problems II (2-5 cr) F-S (115-116)

Situation response, program formulation, synthesis in architecture, the landscape and interiors. 6-15 lab periods per wk; one 7-day field trip during yr combined with 455-456.

359-360 Interiors and Materials (2 cr) F-S

Use and application of textiles and furniture; drawings and models; furniture design.

363 Programs and Systems II (2 cr) F

Goals and identification of architectural form determinants; analytic methods for the synthesis of architectural elements using applicable computer techniques. 6 lab periods per wk.

365-366 Building Technology I (4 cr) F-S (131-132)

Basic behavior of elastic materials under various load conditions; design of elementary framing members, connections and assembly (wood). Environmental control: water supply, drainage, heating and air conditioning systems. Integrate with 355-356.

369-370 Space Planning I (2 cr) F-S

Elementary planning, studies, drawings and construction models with emphasis on basic occupancy standards, light and color.

375 History of Renaissance Architecture (2 cr) F (140)

Renaissance and Baroque periods in Europe from 1400 to 1800.

376 History of Modern Architecture (2 cr) S (140)

19th and 20th centuries; emphasis on Europe and the U. S.

383 Landscape Construction (2 cr) F

Drainage and grading; soils and terrain in relation to earthwork as design determinants; irrigation layout and design of landscape structures. Two 3-hr lab periods per wk.

384 Plant Materials and Planting Design (2 cr) S

Selection and use of plant materials in relation to soils, topography, climate. Field study. One lec and one 3-hr lab per wk.

455-456 Integrative Problems III (2-5 cr) F-S (117-118)

The building, the community and the environment in architecture and the landscape; advanced problems in interior design. 6-15 lab periods per wk; one 7-day field trip during yr combined with 355-356.

459-460 Interiors and Materials II (2 cr) F-S

Use and application of ceramics, metals and plastics; problems of acoustics. Drawings and models.

463 Programs and Systems III (2 cr) F

Analytic research problems; development of design systems and activity analysis using applicable computer techniques. 6 lab periods per wk.

465-466 Building Technology II (4 cr) F-S (135-136)

Design of steel and reinforced concrete buildings; theory and analysis of complex framing systems. Environmental control: electrical systems, lighting and acoustics. Integrative with 455-456.

467-468 Introduction to City Planning (3 cr) F-S (175-176)

History and theory of city planning and the problems associated with urban growth; analysis of 20th century planning in the U.S. and Europe; group housing and urban development patterns.

469-470 Space Planning II (2 cr) F-S

Planning and layout; studies, drawings and construction models; emphasis on materials, textures and mechanical equipment.

473-474 Seminar: Research Methods (2 cr) F-S

Problems relating to advanced information gathering, evaluation and program formulation; applicable computer techniques.

475-476 Integrative Problems IV (2-5 cr) F-S (165-166)

Case studies through analysis of significant aspects of building and project types. 6-15 lab periods per wk.

483 Park and Recreation Planning (2 cr) F

Recreation facilities of community role; recreation concepts; design in relation to community socio-economic structure, land use and recreation potential. One lec and one 3-hr lab per wk.

484 Regional Landscape Planning (2 cr) S

Land use, analysis and planning; use in relation to regional scale; problems in special area studies. One lec and one 3-hr lab per wk.

485-486 Building Technology III (2 cr) F-S

Seismic analysis in basic and complex buildings; special problems (building type); environmental control, communications, sound control systems. Integrative with 475-476.

493-494 Seminar in Urban Studies (2 cr) F-S

See Inter 493-494 for description.

495-496-497 Professional Practice I-II-III (2 cr) F-S-F (167-168)

495: the architect's duties and responsibilities in practice (the construction documents and contracts). 496: project supervision, office administration and comprehensive services. 497: specification writing, unit costs, and building estimating.

498 Proseminar (1-3 cr, max 6) F & S (Art 161b-162b)

Prereq: perm.

500 Master's Research and Thesis (cr arr) F & S (300)

555 Seminar (2 cr, max 4) F & S (227-228)

Theory and creative process in architectural design.

562 Concepts in Contemporary Habitation (3 cr) F or S

The house in history establishing precedents for the current patterns of housing with a critical analysis to determine their suitability to the requirements of today's society.

590 Professional Problems (3 cr, max 6) F & S (221-222)

Individual problems. Jury evaluation of project required.

ARMY ROTC (Army)

Col. Fletcher (Head). Professor: Col. Fletcher; Assistant Professors: Lt. Col. Holland, Majors Spunzo, Tilton, Wagner.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

101-102 Military Science I (1 cr) F-S (1-2)

Orientation to ROTC; organization, missions, functions of the Army; evolution of warfare and weapons; objectives and instruments of national power, strategy and security; leadership; military courtesy and customs. One lec and one lab per wk.

201-202 Military Science II (1 cr) F-S (3-4)

History of warfare; leadership training; command experience; organization of basic military teams; duties, responsibilities, methods of employment of small military units; use of maps, aerial photographs and terrain factors. Two lec and one lab per wk. Prereq: 101-102.

301-302 Military Science III (3 cr) F-S (101-102)

Leadership and management; leader's role in offensive and defensive missions of units ranging from squad to battalion. Four lec and one lab per wk. Prereq: 201-202.

401-402 Military Science IV (3 cr) F-S (103-104)

Application of leadership and management skills; Army organization; teamwork in military operations. Four lec and one lab per wk. Prereq: 301-302.

403 Army Aviation ROTC Flight Training (0 cr) F & S (109-110)

To prepare students for Army Aviation flight training and FAA examinations leading to the private pilot's license. Ground school, plus 36 1/2 hrs of flight instruction. Coreq: 401-402.

Art (Art)

Robert E. McConnell (Head, Art and Architecture). Professors Dunn, Kirkwood, Roberts (Chairman); Associate Professor Westerlund; Instructors Jones, Shap.

See the beginnings of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

101-102 Survey of Art (2 cr) F-S (41-42)

To promote an understanding and appreciation of the various arts; viewpoints of artist and layman.

111-112 Drawing I (2 cr) F-S (1-2)

Freehand drawing; emphasis on expressive use of materials. Two 2-hr labs per wk and assigned work.

121-122 Design I (2 cr) F-S (3-4)

Elements of design explored through various media in two and three dimensional problems. Two 2-hr labs per wk and assigned work.

211-212 Drawing II (2 cr) F-S (75-76)

Advanced drawing from life and nature. Two 3-hr labs per wk. Prereq: 111-112.

221-222 Design II (2 cr) F-S

Advanced design explored through various media in two and three dimensional problems. Two 2-hr labs per wk and assigned work.

223-224 Lettering and Layout (2 cr) F-S (47-48)

223: calligraphy and basic letter forms as they relate to type. 224: layout techniques and typography. One lec and one 3-hr lab per wk.

231-232 Painting I (2-4 cr) F-S (61-62)

Fundamentals of painting and color. One 3-hr lab per wk per cr.

233-234 Water Color I (2 cr) F-S (77-78)

Introduction to techniques of water color painting by individual instruction and group criticism. One rec and one 3-hr lab per wk. Prereq: 111-112.

241-242 Sculpture I (2 cr) F-S (71-72)

Experiments in three dimensional design employing sculptural tools, techniques and materials. Two 3-hr labs per wk.

261-262 Ceramics I (2 cr) F-S (65-66)

Hand-built pottery; use of wheel; glazing and firing. Two 3-hr labs per wk.

301-302 History of Painting (3 cr) F-S (129-130)

Technical study of the great occidental painters of history.

311-312 Drawing III (2 cr) F-S (127-128)

Advanced drawing from life in various media. 3 hrs per wk per cr.

323-324 Graphic Design I (2 cr) F-S (121-122)

Problems in illustration and advertising design. Two 3-hr labs per wk; one 2-day field trip one semester.

331-332 Painting II (2-4 cr) F-S (107-108)

Painting in oil from the model, nature and abstract form. One 3-hr lab per wk per cr. Prereq: 111-112 or 231-232.

333-334 Water Color II (2 cr) F-S (101-102)

Techniques of water color painting; sketching from still life and nature. One rec and one 3-hr lab per wk. Prereq: 111-112.

335-336 Composition (3 cr) F-S (123-124)

Pictorial composition through student problems. Prereq: 111-112 and 211-212 or 331-332.

337-338 Materials and Techniques (2-4 cr) F-S

Individual problems.

341-342 Sculpture II (2-4 cr) F-S (171-172)

Individual investigation of sculptural concepts and advanced techniques. One 3-hr lab per wk per cr.

351-352 Printmaking (2 cr) F-S (133-134)

The art of printmaking; relief, planographic and intaglio. Two 3-hr labs per wk. Prereq: 111-112.

361-362 Ceramics II (2 cr) F-S (103-104)

Continuation of basic techniques; individual experiments with form and glazes. Two 3-hr labs per wk.

371-372 Jewelry (2 cr) F-S

Design of semi-precious materials; jewelry and silversmithing techniques; cutting and use of semi-precious stones. Prereq: 121-122.

391-392 Crafts in Art Education (2 cr) F-S

Design of leathers, plastics and other craft materials.

423-424 Graphic Design II (2 cr) F-S (147-148)

Advanced problems in illustration and advertising design; lectures on production and studio practice. One lec and two 3-hr labs per wk; one 2-day field trip one semester.

431-432 Painting III (2-4 cr) F-S (141-142)

Advanced painting; portrait, life and creative composition. One 3-hr lab per wk per cr.

433-434 Water Color III (2 cr) F-S

435 Special Problems (2 cr, max 4) F & S

Advanced exploration of various painting techniques: acrylic, lacquer, tempera, encaustic and other media.

441 Sculpture III (2-4 cr, max 8) F & S

463 Thesis (2-4 cr, max 8) F & S (163-164)

Prereq: sr standing.

497 Proseminar (1-3 cr, max 12) F & S (161-162)

(a) Art

(b) Art Education

Max 6 cr each subtitle. Prereq: perm.

500 Master's Research and Thesis (cr arr) F & S (300)

501 Studio Problems (3-5 cr, max 10) F & S (201-202)

503 Professional Problems (3-5 cr, max 10) F & S (203-204)

515 Seminar (3 cr, max 6) F & S (215-216)

BACTERIOLOGY (Bact)

V. A. Cherrington (Head). Professors Anderson, Cherrington; Associate Professors Beck, Teresa. Faculty members at affiliated hospitals: Associate Professors Christianson, Ludden, Mc Carter.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

250 General Bacteriology (4 cr) F & S (51)

Primarily for students in the sciences. Two lec and two 2-hr labs per wk. Prereq: Chem 103 or 111. (CHERRINGTON)

254 Public Health and Hygiene (3 cr) S (54)

Applied hygiene and sanitation from the standpoint of bacteriological and related

sciences; prevention of communicable diseases; environment in relation to health and disease. (CHERRINGTON)

- 304 Pathogenic Bacteria (4 cr) S (104)**
Disease-producing organisms; cultural, biochemical and morphological characteristics which serve as a means of identification. Two lec and two 3-hr labs per wk. Prereq: 250. (TERESA)
- 400 Independent Study (1-3 cr, max 6) F & S (115-116)**
- 402 Food and Applied Microbiology (4 cr) S (102)**
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. (ANDERSON)
- 409 Immunology and Serology (4 cr) F (109)**
Theory of immunity; animal experiments in the production of immune sera, use of vaccines, preparation and testing of vaccines, sera, toxins and anti-toxins. Two lec and two 3-hr labs per wk. Prereq: 250, 304. (TERESA)
- 414 Clinical Laboratory Methods (4 cr) S (114)**
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, 409. (BECK)
- 421 Clinical Diagnosis: Internship (1-32 cr) F & S (121)**
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. 12 mos training. Prereq: 414.
- 425 Soil Microbiology (3 cr) F (125)**
Also offered as Soils 425. Activities of microscopic forms of plant and animal life within the soil, relationship between microbial activities, soil fertility and crop production. One lec and two 3-hr labs per wk. Prereq: 250. (ANDERSON)
- 450 Proseminar in Bacteriological Literature (1-2 cr, max 4) F & S (111-112)**
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 503 Physiology of Bacteria (2-4 cr) F (203)**
Alt/yrs 1970-71. 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 or perm. (BECK)
- 505 Microbial Fermentations (2-4 cr) F (205)**
Alt/yrs 1969-70. Industrial and non-industrial fermentations; biochemical mechanisms and methods of fermentation analysis. Two lec or two lec with labs per wk. Prereq: 250, Chem 372, or perm. (BECK)
- 507 Bacterial Taxonomy (2 cr) F (207)**
Taxonomic groups of bacteria; philosophies of classification. Prereq: perm (ANDERSON)
- 509 Virology (2-4 cr) F (209)**
Emphasis on pathogenesis and host-virus relationship. Prereq: perm.
- 510 Graduate Problems (1-3 cr, max 6) F & S (215-216)**
(a) Food
(b) Medical
(c) Metabolism
(d) Soil Bacteriology
Prereq: 503 or 505 or perm.

512 Microbial Genetics (2-4 cr) S (212)

Also offered as Genet 512. Genetics of microorganisms; reproduction, variation and heredity. Prereq: elem course in genetics is recommended.

550 Seminar (1 cr, max 4) F & S (201-202)

600 Doctoral Research and Dissertation (cr arr) F & S (300)

BIOLOGY (Biol)

Doyle E. Anderegg (Head, Biological Sciences). Professor Anderegg; Associate Professor Johnson.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

100 General Biology (4 cr) F & S (1)

Fundamental concepts and principles; influence on man. Not open to majors or minors for credit. Three lec and one 2-hr lab per wk. (JOHNSON)

150 Heredity and Man (2 cr) F (31)

Also offered as Genet 106. Inheritance with emphasis on man. Not open for credit to majors or minors, or to students who have previous credit in genetics. (FORBES)

201 Introduction to the Life Sciences (4 cr) F & S (11)

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: 1 yr high school biology and 1 yr high school chemistry with grades of C or better, or 100, or Chem 103 or 111. (ANDEREGG)

202 General Zoology (4 cr) F & S (12)

Anatomy, embryology, histology, and physiology of vertebrate and invertebrate animals; the animal kingdom. Three lec and two 2-hr labs per wk. Prereq: 201. (WALLACE)

203 General Botany (4 cr) S (13)

Vegetative and reproductive processes and structures of flowering plants in relation to environment, heredity, economics, and distribution; representative individuals from other divisions of the plant kingdom in relation to flowering plants. Three lec and two 2-hr labs per wk. Prereq: 201. (NASKALI)

207 Introduction to Oceanography (3 cr) S (79)

History, methods and materials; geological, physical-chemical and biological characteristics of the oceans; biological aspects emphasized. Prereq: course in biological science. (WALLACE)

331 General Ecology (3 cr) S (101)

Ecological principles of plants and animals; structure and function of the ecosystem; major ecosystems of the world. Two lec and one 1-hr demonstration per wk. Prereq: 202-203 or 1 yr of biology. (RABE)

351 General Genetics (3 cr) S (114)

Also offered as Genet 314 and PISc 314. Genetic mechanisms in animals, plants and microorganisms; forms important in biological research. Prereq: 201. (FORBES)

- 352 General Genetics Laboratory (1 cr) S (115)**
Also offered as Genet 315. One 3-hr lab per wk. Prereq or coreq: 351 or Genet 314 or PISc 314. (FORBES)
- 361 Biological Literature (1 cr) F & S (102)**
Botanical and zoological literature. Prereq: major in one of the life sciences or 20 cr in any combination of biology, botany or zoology. (TYLUTKI)
- 405 Biological Laboratory Procedures (2 cr) S (116)**
Lab organization, preparations and demonstrations using readily available, inexpensive materials.
- 442 Biological Evolution (3 cr) F (Zool 107)**
Evolution of organisms: character variability, adaptation, natural selection, population systems, ecologic control, speciation, evolutionary rates; development of mammals, including man. Prereq: 202-203 or perm. (LARRISON)
- 445 Taxometrics (3 cr) F (170)**
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. (TYLUTKI)
- 451 Cytology (3 cr) S (128)**
Structure and function of the nucleus and cytoplasm in animal and plant cells. Two lec and one 3-hr lab per wk. Prereq: 351. (McMULLEN)
- 462 Biological Field and Museum Techniques (3 cr) S (160)**
Applied to plant and animal research collections; organization and administration of collecting expeditions, types of specimens and field data obtainable, methods of analysis, storage of specimens, dissemination of research results. Two lec and one 3-hr lab per wk; one 2-day field trip. Prereq: perm. (LARRISON)
- 501 Seminar (1 cr) F & S (N261)**
Recent advances and applications of the biological sciences.
- 502 Professional Problems (1-6 cr) F & S (N270)**
Offered in any field of biology. Prereq: perm of dept.
- 506 Biology for Teachers (2 cr) SS (218)**
Collection, culture and/or preservation and utilization of biological material.
- 507 History of Biology (2 cr) S (260)**
From Aristotle to modern times; development of concepts and methods.
- 555 Physiological and Molecular Genetics (2-3 cr) F or S (237)**
Also offered as Genet 537. Prereq: 351. (FORBES)

BOTANY (Bot)

Doyle E. Anderegg (Head, Biological Sciences). Professors Baker (Chairman), Roberts; Associate Professors Aller, McMullen, Tylutki; Assistant Professor Naskali.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 200 Economic Botany (2 cr) F (78)**
Influence of plants and plant products on history and civilization; plants in international commerce. Prereq: Biol 203. (TYLUTKI)

- 241 Systematic Botany (3 cr) F & S (53)**
 Classification and identification of flowering plants; local flora. Three 2-hr labs per wk. Prereq: Biol 203 or perm. (BAKER)
- 311 Plant Physiology (3 cr) F (101)**
 Water exchange, foods, translocation, growth and nutrition, metabolism. Two lec and one rec-demonstration per wk. Prereq: Biol 203 and organic chemistry (ROBERTS)
- 325 Morphology of Lower Plants (4 cr) F (121)**
 Structures, life histories, classification and phylogeny of fungi and algae. Two lec and two 3-hr labs per wk. Prereq: Biol 203. (McMULLEN)
- 326 Morphology of Bryophytes and Vascular Plants (4 cr) S (122)**
 Structure, life history, classification and phylogeny of liverworts, mosses, ferns, clubmosses, horsetails, conifers, flowering plants. Two lec and two 3-hr labs per wk. Prereq: Biol 203.
- 364 Botanical Microtechnique (3 cr) F (104)**
 Methods of treating plant tissues for microscopic examination or histochemical tests. Two 3-hr labs per wk. Prereq: Biol 203 or perm. (NASKALI)
- 399 Independent Study (1-3 cr, max 6) F & S (123-124)**
- (a) Anatomy
 - (b) Cytology
 - (c) Cytotaxonomy
 - (d) Ecology
 - (e) Genetics
 - (f) Geography
 - (g) Morphology
 - (h) Mycology
 - (i) Physiology
 - (j) Phycology
 - (k) Taxonomy
 - (l) Senior Report
- Reading and/or research. Prereq: perm of dept.
- 411 Plant Physiology (4 cr) S (102)**
 Reproductive and developmental physiology; floral induction, fruit physiology, abscission, cell differentiation, role of plant growth substances in physiological processes. Two lec and two 3-hr labs per wk. Prereq: Biol 203 and organic chemistry. (ROBERTS)
- 425 Developmental Plant Anatomy (4 cr) F (103)**
 Origin and development of tissues and organs of vascular plants in relation to heredity, environment, physiology. 8 hrs per wk. Prereq: Biol 203. (NASKALI)
- 432 Plant Ecology (3 cr) F (105)**
 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. (ALLER)
- WS435 Synecology (3 cr) F (135)**
 WSU 462. Structure; methods of analysis; dynamic behavior of plant communities. Prereq: 241.
- WS437 Field Ecology (2 cr) S (136)**
 WSU 463. Structure, environmental relations; dynamism of local desert, grass land and forest communities. Field trips. Prereq: 435.

- 441 Agrostology (3 cr) F (107)**
Classification, distribution, structure of grasses. One lec and two 3-hr labs per wk. Prereq: Biol 203 or perm. (BAKER)
- N443 Field Botany (3 cr) SS (N131)**
Field observations, collection, preservation and identification of local plants; consideration of habitat. Two lec and three 3-hr labs per wk.
- ID472 Biology of Fungi (4 cr) S (111)**
Life activity of fungi; examination of structure, life histories, classification. Two lec and two 3-hr labs per wk. Prereq: Biol 203 or perm. (TYLUTKI)
- 474 Phycology (4 cr) F (119)**
Morphology and ecology of fresh water and marine algae; principles of classification; collection, identification, making of permanent microscopic preparations. Prereq: Biol 203. (McMULLEN)
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 501 Seminar (1 cr, max 2) F & S (221-222)**
- 511 Mineral Nutrition (3 cr) S (227)**
Alt/yr 1969-70. Also offered as Soils 548. 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 or 411 and organic chemistry.
- 512 Plant Growth Substances (3 cr) S (228)**
Alt yrs 1970-71. 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 or 411 and organic chemistry. (ROBERTS)
- 532 Autecology of Plants (3 cr) S (203)**
Alt yrs 1970-71. Factors of the environment, plant reactions, ecological adaptations. Two lec and one 2-hr lab-disc per wk. Prereq: 432. (ALLER)
- 535 Plant Geography (3 cr) S (209)**
Alt yrs 1969-70. 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, climatic change; mechanics of distribution; discontinuity patterns. Prereq: 432 or perm. (ALLER)
- 539 Physiological Ecology (2 cr) F or S (205)**
Alt/yr 1969-70. Physiological mechanisms which influence plant distribution natural inhibitors, toxins, symbiosis, soil nutrients, radiation; micro- and macro-organismal interrelationships. Prereq: 432.
- N540 Advanced Systematic Botany (2 cr) SS (N260)**
Natural systems of taxonomy, relation of taxonomy to phylogeny and taxonomic problems peculiar to certain plant groups. Prereq: perm. (ALLER)
- 543 Biosystematics of Flowering Plants (2 cr) F (276)**
Role of cytology, genetics, serology, phytochemistry, phytogeography; character correlation and discrimination in the field of taxonomy; experimental taxonomy and classical taxonomy compared. Prereq: one course in systematic botany. (ALLER)
- 545-546 Advanced Taxonomy (2-3 cr) F-S (207-208)**
Taxonomy and morphology of special plant groups; aquatics. Prereq: 241. (BAKER)

- 558 Genetics of Fungi (3 cr) S (210)**
 Alt yrs 1970-71. Also offered as Genet 511. Genetic systems and sexuality of fungi. Prereq: 472, Biol 351, or perm. (TYLUTKI)
- 572 Advanced Mycology (3 cr) F (212)**
 Alt yrs 1970-71. Physiology, biochemistry and biophysical aspects of fungal cells, organisms, populations. Prereq: 472, organic chemistry, and physics, or perm. (TYLUTKI)
- WS575 Basidiomycetes (3 cr) F or S (217)**
 WSU PP 522. Taxonomy, physiology, reproduction of rusts, smuts, higher basidiomycetes. Prereq: 241, Biol 203, or PI Sc 303.
- WS576 Ascomycetes and Fungi Imperfecti (2 cr) F or S (218)**
 WSU PP 523. Taxonomy, phylogeny, physiology, reproduction of ascomycetes, fungi imperfecti. Prereq: 241, Biol 203, or PISc 304.
- WS577 Myxomycetes and Phycomycetes (2 cr) F or S (219)**
 WSU PP 524. Taxonomy, phylogeny, physiology, reproduction of myxomycetes and phycomycetes. Prereq: 241, Biol 203, or PISc 304.
- 599 Independent Study (1-3 cr, max 6) F & S (233-234)**
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|------------------|----------------|--------------------|
| (a) Anatomy | (e) Genetics | (h) Physiology |
| (b) Cytology | (f) Morphology | (i) Phytogeography |
| (c) Cytotaxonomy | (g) Mycology | (j) Taxonomy |
| (d) Ecology | | |
- Reading and or research. Prereq: perm of dept.
- 600 Doctoral Research and Dissertation (cr arr) F & S (300)**

BUSINESS (Bus)

David D. Kendrick (Dean, Business and Economics). Professors Carter, Chrysler, Dobler, Kendrick, Moberly; Associate Professor Seelye; Assistant Professors Merk, Moore, Rice.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 101 Business Lectures (1 cr) F (1)**
 Introduction to business administration and economics.
- R102 Introduction to Business (3 cr) F or S (R27)**
 Survey of the various phases of business activity.
- R135 Principles of Cost Estimating (3 cr) F (R35)**
 Techniques and skills; cost elements, data sources and their application.
- R136 Government Contract Pricing (3 cr) S (R36)**
 Methodology of pricing. Prereq: R135 or perm.
- 231 Statistics (4 cr) F & S (83)**
 As applied to study and interpretation of economic phenomena. Three lec and one 2-hr lab per wk. Prereq: Math 111 or 140-141.
- 233 Introduction to Computers (3 cr) F & S (64)**
 Elements of programming; computer operation.

- 301 Financial Management (3 cr) F & S (124)**
Policies and practices. Prereq: Actg 132, Econ 252.
- 302 Financial Institutions and Credit (3 cr) S (146)**
Emphasis on financial intermediaries, investment banking, governmental financial institutions. Prereq: Actg 132, Econ 252.
- 311 Introduction to Management Theory (3 cr) F & S (133)**
Organization structures; philosophy and values in business organizations; organization as a social issue.
- 312 Industrial Management (3 cr) S (134)**
Location, buildings, equipment, layout, materials, production control, personnel policies. One 1-day field trip. Prereq: 231.
- 313 Office Management (2 cr) F & S (162)**
Application of generally-accepted principles to administrative services.
- R314 Nuclear Reactor Management Concepts (3 cr) F or S (R139)**
To equip the non-technically trained administrator with a working knowledge of reactor theory and its applications. Prereq: perm.
- 321 Marketing (3 cr) F & S (103)**
Marketing processes; marketing institutions and middlemen. Prereq: Econ 252.
- 323 Principles of Advertising (3 cr) F (109)**
Function; social and economic aspects; motivation, copy illustration, layout, media; campaign planning. Prereq: jr standing.
- 324 Sales Management (3 cr) S (132)**
Selecting, training, compensating, stimulating, supervising and directing the selling efforts of an outside sales force; organization and methods.
- 333 Electronic Computers in Business and Economics (3 cr) S (104)**
Impact of computers on decision making: FORTRAN IV, COBOL, PL/I; information science; information systems and data processing. Prereq: 233.
- 334 Statistics for Business Decisions (3 cr) S (140)**
Decision making under conditions of uncertainty; utility and probability theory. Prereq: 231.
- R360 Government Contract Law and Administration (3 cr) F or S (R11)**
Principles of law which affect a government agency's action; emphasis on AEC. Prereq: perm.
- 365 Business Law (3 cr) F & S (165)**
Legal framework of business enterprise; importance and role of law; private property and contract as basic concepts in a free enterprise system.
- 401 Investments (3 cr) F or S (136)**
Problems; types of securities. One 1-day field trip. Prereq: 301.
- 403 Insurance (3 cr) F (177)**
Major branches of insurance; principles and practices.
- 404 Life Insurance (3 cr) S (178)**
Companies, contracts, uses, premium computations, economic aspects. Prereq: 403 or perm.
- 411 Organization Theory (3 cr) F & S (144)**
Management; theories and research in human behavior and their managerial applications. Prereq: 311.

- 412 Personnel Management (3 cr) F (151)**
Organization; policies and procedures. Prereq: 311 or perm.
- 413 Human Relations in Business (3 cr) F & S**
Case study method used to apply behavioral science theories and principles for the development of human collaboration. Prereq: 311 or perm.
- 414 Management Policy (3 cr) S (182)**
Emphasis on policy decision making under conditions of uncertainty. Prereq: 311 or perm.
- 421 Marketing Problems (3 cr) S (170)**
Channels of distribution, distribution policies, sales promotion, price determination, price policies. Prereq: 321.
- 422 Marketing Research and Analysis (3 cr) S (171)**
Purposes, methods and techniques; market potential analysis; product analysis and adoption. Prereq: 231, 321.
- 423 Retail Merchandising Fundamentals (3 cr) F (173)**
Location, capital and physical requirements; store organization, personnel; merchandise; pricing; buying and receiving; sales promotion, customer services; retail expense management. Prereq: 321.
- 424 Retail Merchandising Problems (3 cr) S (174)**
Site selection; physical plant; personnel; purchase planning; pricing, buying and receiving merchandise; advertising; customer services. One field trip. Prereq: 423.
- 425 Intermediate Marketing Management (3 cr) F (176)**
Demand analysis theory; structure of distribution and location theory, organizational buying behavior; decision making by marketing management.
- 432 Quantitative Methods in Business and Economics (3 cr) S (160)**
Also offered as Econ 432. Quantitative methods employed in solving business and economic problems. Prereq: 231, Econ 252, or perm.
- 436 Business and Economic Fluctuations (3 cr) S (193)**
Also offered as Econ 436. Application of recent theoretical, statistical and institutional developments to business forecasting. Prereq: 231, Econ 372.
- 438 Advanced Statistics (3 cr) S (198)**
Also offered as Econ 438. Correlation analysis; time correlation and business forecasting, analysis of variance, statistical analysis of business cycles. Prereq: 231.
- 439 Systems Analysis and Simulation (3 cr) S (199)**
Analysis of the various types of systems within a business firm; creation and testing of systems utilizing the technique of computer simulation. Prereq: 233.
- 441 Labor Economics and Labor Relations (4 cr) F & S (Econ 141)**
See Econ 441 for description.
- 442 Government Regulation of Business (3 cr) S (168)**
Also offered as Econ 442. Relations between government and business; types of government control. Prereq: Econ 252 or perm.
- 444 International Commercial Policy (3 cr) S (172)**
Also offered as Econ 444. Principles of international trade; tariff, foreign exchange, market development, dumping, foreign policies, trade agreements, merchandising. Prereq: Econ 251.

- 450 The Computer and Information Science (3 cr) S**
Computer components, capabilities, functions; software and languages; systems analysis; role in the business organization. Prereq: perm.
- 461 Real Estate (3 cr) F (119)**
Listing, selling, leasing, financing, brokerage; fundamentals of valuation and of listing property management.
- 462 Real Property Appraisal (3 cr) F (145)**
Theories and principles in estimating value of natural resources and any attached improvements. Prereq: Econ 252 or perm.
- X463 Real Estate Fundamentals (0 cr) X (X120)**
Practical basic study of real estate activity; legal, social, economic, financial operational phases of real estate in Idaho.
- X464 Real Estate Law (0 cr) X (X121)**
Practical applied study of Idaho real estate law; to help avoid legal difficulties arising from real estate transactions.
- 466 Business Law (3 cr) F (166)**
Trade regulations, negotiable instruments, sales, chattel mortgages, conditional sales, suretyship, insurance. Prereq: 365 or perm.
- 467 Business Law (3 cr) S (167)**
Agency, partnerships, corporations, real property. Prereq: 365 or 466.
- 493-494 Seminar in Urban Studies (2 cr) F & S**
See Inter 493-494 for description.
- 495 Honors (3 cr) F & S (195)**
Directed program of individual study to provide selected students an opportunity for more advanced work than normally available to undergraduates. Prereq: perm of dept.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 501 Financial Policy (3 cr) F (227)**
Social and economic implications of the financial process. Prereq: perm.
- 511 Seminar (3 cr) F & S (211)**
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|--|---------------------------|
| (a) Real Estate | (e) Industrial Management |
| (b) Investments | (f) Industrial Relations |
| (c) Insurance | (g) Current Business |
| (d) Government Regulation
of Business | Problems |
- 513 Administrative Organization (3 cr) F (217)**
Organizational theory; includes research and theories in other fields, such as behavioral sciences and economics as related to business organization theory. Prereq: perm.
- 521 Advanced Marketing (3 cr) S (212)**
Production development, pricing, demand creation, physical distribution, channel selection. Prereq: perm.
- 525 Operations Management (3 cr) F (225)**
Decision making in production and operations management; design and control of the production system. One 1-day field trip. Prereq: 231.

- 532 Dynamics of Business Decisions (3 cr) S (240)**
Statistical decision theory and operations research techniques. Prereq: 231 or perm.
- 533 Automation Systems (1 cr) F (296)**
Types of computers for accumulation and control of accounting data; programming and multiple use of data; audit of machine systems.
- R571-R572 Techniques of Management Science (3 cr) F & S (R271-R272)**
Prereq: perm.
- 580 Seminar in Administration and Contemporary Issues (3 cr) F & S**
See Inter 580 for description.
- R597-R598 Statistical Methods in Business Applications (3 cr) F-S (R297-R298)**
Development and application of mathematical statistics to business procedures. Prereq: perm.

BUSINESS EDUCATION (BusEd)

Hervon L. Snider (Head, Department of Education). Professor Kessel; Associate Professor Ertel.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 491-492 Teaching Business Education I-II (2-3 cr; 3 cr) S (191-192)**
Methods and materials. 491: office occupations, 492: basic business subjects. Prereq: perm.
- 493 Teaching Distributive Education (3 cr) F (193)**
Methods and materials. Prereq: perm.
- 496 Directed Work Experience (2 cr) F & S (196)**
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.
- 497 Coordination Techniques (3 cr) S (197)**
Also offered 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.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 507 Workshop (1-2 cr) SS (207)**
- (a) Office Occupations
 - (b) Economic Education
 - (c) Distributive Education
- Consult the summer school bulletin for the length and special emphasis of each workshop when offered.
- 511 Seminar (2-4 cr, max 8) F & S (211-212)**
Prereq: perm.

- 515 Professional Problems (1-3 cr, max 6) F & S (215-216)**
Independent study. Prereq: perm.
- 520 Office Occupations Subjects (3 cr) F or S (220)**
Methods and materials; standards of achievement; review of literature and research. Prereq: perm.
- 521 Basic Business Subjects (3 cr) F or S (221)**
Methods and materials; standards of achievement; review of literature and research. Prereq: perm.
- 522 Issues in Business Education (3 cr) F or S (222)**
Philosophies, objectives, trends, organization patterns of business education in secondary schools. Prereq: perm.
- 523 Adult Distributive Education (3 cr) F or S (223)**
Establishing and developing adult programs in distributive education. Prereq: perm.
- 524 Issues in Distributive Education (3 cr) F or S (224)**
Philosophies, objectives, trends, organization patterns of distributive education in secondary schools. Prereq: perm.
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CHEMICAL ENGINEERING (ChE)

Robert R. Furgason (Department Chairman), Professors Furgason, Hoffman, Jackson, Warner; Associate Professors Bopp, Edwards, Romero, Scheldorf; Assistant Professors Dunn, Thomson; Assistant Research Technologist McConachie.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 221 Introduction to Chemical Engineering (2 cr) F (21)**
Survey of the field; job opportunities, basic concepts and the curriculum; elementary calculational techniques and material balances including case studies on selected processes. One field trip. Prereq: soph standing.
- 323 Material and Energy Balances (2 cr) F (123)**
Theory and applications including thermodynamics of non-ideal solutions. Prereq: Phys 210; coreq: ES 321.
- 330 Stage-wise Operations (2 cr) S (130)**
Physical equilibrium and stage-wise (equilibrium) operations of distillation, extraction, absorption, and ion exchange. One 1-3 day field trip. Prereq: 323 and ES 321.
- 371 Process Engineering (2-3 cr) F or S (171)**
For non-majors. Application of chemical engineering principles to industrial processing; unit operations of interest to such industries as wood utilization, food processing, dairying, and fermentation. Not open for credit to majors. Prereq: perm.
- 393 Chemical Engineering Projects (1-3 cr, max 9) F & S (193-194)**
Problems of a research or exploratory nature. Prereq: perm of dept.

- 423 Reactor Kinetics and Design (3 cr) F (124)**
Kinetics and design of chemical reactors; chemical equilibrium reaction rates, catalysis and reactor types. Prereq: 323, Chem 305.
- 430 Transport Processes (3 cr) S (131)**
Transport phenomena in one dimension and at steady state, involving mass, heat and momentum transfer, with applications. Prereq: ES 320; prereq or coreq: Math 310.
- 431 Rate Processes (2 cr) F (132)**
Design of processing equipment from rate considerations including chemical reactors and such unit operations as drying, crystallization, filtration, sedimentation and fluidization. Coreq: 430.
- 441-442 Chemical Engineering Laboratory I-II (2 cr) F-S (141-142)**
441: chemical process equipment performance; determination of transport properties; individual projects. 442: performance and operation of unit operation and unit process equipment; individual projects. Two 3-hr labs per wk. Prereq or coreq for 441: 430. Prereq or coreq for 442: 431.
- 443 Instrumentation Laboratory (1 cr) F or S (143)**
Analytical techniques and instrumentation equipment. One 3-hr lab per wk. Prereq: perm.
- 444 Automatic Process Control (3 cr) S (144)**
Process dynamics and control, including application of industrial instruments to processing systems. Two lec and one 3-hr lab per wk. Prereq: EE 200.
- 453-454 Chemical Process Analysis and Design (3 cr) F-S (153-154)**
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: Econ 251, sr standing.
- 482 Process Equipment Design (2 cr) F or S (182)**
Design for extremes of pressure and temperature; materials of construction. Prereq: perm.
- 483 Fluid-particle Systems (2-3 cr) F or S (183)**
Fluid-particle technology as applied to fluids-solids processing. Prereq: ES 320.
- 484 Electrochemical Processes and Energy Conversion (2-3 cr) F or S (184)**
Ionic migration in electric fields and motion of particles in electrolytic solutions; Methods of energy conversion involving fuel cells, MHD generators and solar cells. Prereq: perm.
- 490 Introduction to Chemical Engineering Principles (3 cr) F or S (191)**
For chemists, mechanical engineers and other non-chemical engineers. Material and energy balances and unit operations; operations in use as NRTS. Prereq: perm.
- 491 Seminar (0 cr) F & S (110)**
Professional aspects of the field; recent developments and topics. Prereq: sr standing.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 505 Seminar (1 cr, max 2) F & S (205-206)**
Conferences and reports on research and current developments.

- 507 Directed Study (1-3 cr, max 9) F & S (207-208)**
Group or individual study; emphasis on current literature. Prereq: perm.
- 515 Transport Phenomena (3-4 cr) F or S (215)**
Unified treatment of momentum, heat and mass transfer in three dimensions; unsteady state; pertinent vector equations; methods of solution. Prereq: perm.
- 525 Advanced Heat Transfer (2-3 cr) F or S (225)**
Applications of fundamentals of heat conduction, radiation and convection; relationships to fluid dynamics and mass transfer; economics and design applications. Prereq: perm.
- 527 Chemical Engineering Thermodynamics (2-3 cr) F or S (227)**
Equilibrium in physical and chemical systems; theoretical and generalized prediction of thermodynamic properties of pure materials and solutions, including deviations from ideality. Prereq: perm.
- 529 Chemical Engineering Kinetics (2-3 cr) F or S (229)**
Analysis of industrial chemical reactions; theories of reaction rates and catalysis; catalytic reactor design. Prereq: perm.
- 534 Chemical Engineering Processes (2 cr) F or S (234)**
Industrial processes, including electrochemistry and high pressure technology, petroleum refinery engineering and pulp and paper technology. Prereq: perm.
- 537 Advanced Fluid Mechanics (2-3 cr) F or S (237)**
Fluid systems encountered in industry; non-Newtonian behavior of particle and plastic systems; two-phase situations including fluidization; film flow. Prereq: perm.
- 541 Chemical Engineering Analysis (2-3 cr) F or S (241)**
Mathematical analysis of chemical engineering operations and processes; mathematical modeling and computer applications. Prereq: perm.
- 544 Advanced Process Control (2-3 cr) F or S (244)**
Theory of process dynamics and systems engineering. Two lec and one 3-hr lab per wk. Prereq: perm.
- 545-546 Diffusional Operations I-II (2 cr) F-S (245-246)**
Diffusion and mass transfer in the operation of absorption, extraction, distillation and drying; design calculations. Prereq: perm.
- 571 Advanced Plant Design (2 cr) F or S (271)**
Design of process plants for optimum cost and economic return; scale-up of pilot plants; comprehensive problems in chemical engineering design. Prereq: perm.
- 600 Doctoral Research and Dissertation (cr arr) F & S (300)**
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CHEMISTRY (Chem)

Malcolm M. Renfrew (Head). Professors Cooley, Grahn, Gustafson, Jolley, Raunio, Renfrew, Shreeve, Thyagarajan; Associate Professor Grieb; Assistant Professors Barrus, Garrard, Hower, Porter, Spangler, Willett.

See the beginning of Part III (Course Descriptions) for numbering system and key abbreviations and symbols.

RELATED FIELDS: For courses in agricultural chemistry and soil chemistry, see agricultural biochemistry.

- 101 Concepts of Chemistry (4 cr) F & S (1)**
Descriptive treatment without problems, relating key developments to modern living. Three lec and one rec per wk.
- 103 Introduction to Chemistry (4-5 cr) F & S (3)**
Principles and applications. Students having high school chemistry may earn only 4 cr. Not open to students who have taken 111. Three lec, two rec, and one 3-hr lab per wk.
- 111 Principles of Chemistry (4 cr) F & S (11)**
Principles and applications. Not open to students who have taken 103. Three lec one rec, and one 3-hr lab per wk. Prereq: high school chemistry.
- 112 Inorganic Chemistry and Qualitative Analysis (5 cr) F & S (12)**
Elementary theoretical chemistry and its application to analytical practice. Lab work consists of the qualitative separation of cations and anions by semimicro methods. Max 8 cr in 112 and 114 combined. Three lec and two 3-hr labs per wk. Prereq: 103 or 111.
- 114 General Chemistry (4 cr) F & S (14)**
Continuation of 103 or 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 8 cr in 112 and 114 combined. Three lec, one rec, and one 3-hr lab per wk. Prereq: 103 or 111.
- 253 Quantitative Analysis (5 cr) F & S (53)**
Theory and practice of gravimetric and volumetric analysis with introduction to modern analytical chemistry. Not open to students who have taken 256. Three lec and two 3-hr labs per wk. Prereq: 112.
- 256 Elements of Analytical Chemistry (4 cr) S (56)**
Condensed theory and practice of gravimetric and volumetric analysis. Not open to students who have taken 253. Two lec and two 3-hr labs per wk. Prereq: 112 or 114.
- *275 Carbon Compounds (3 cr) F & S (75)**
Aspects of organic chemistry important to students in the life sciences. Prereq: 103 or 111.
- *276 Carbon Compounds Laboratory (1 cr) F & S (76)**
Lab to accompany 275. One 3-hr lab per wk. Prereq or coreq: 275.
- *277 Organic Chemistry I (3 cr) F & S (77)**
Principles and theories of organic chemistry and the properties, preparations, and reactions of organic compounds. Prereq: 112 or 144.
- *278 Organic Chemistry I: Laboratory (1 cr) F & S (78)**
Lab to accompany 277. One 3-hr lab per wk. Prereq or coreq: 277.
- 302 Principles of Physical Chemistry (3 cr) F or S (102)**
Emphasis on topics important for students in biological and agricultural sciences. Prereq: 253 or 256, Math 140, Phys 113, or perm.
- 303 Principles of Physical Chemistry Laboratory (1 cr) F or S (103)**
Lab to accompany 302. One 3-hr lab per wk. Prereq or coreq: 302.
- 305-306 Physical Chemistry (3 cr) F-S (105-106)**
Kinetic theory, thermodynamics, and the constitution of matter. Prereq: 112 or 114, Math 200, prereq or coreq: Phys 212.

* Duplicate cr will not be allowed in first-year courses in organic chemistry.

- 307-308 Physical Chemistry Laboratory (1 cr) F-S (107-108)**
Lab to accompany 305-306. One 3-hr lab per wk. Prereq or coreq: 305-306.
- 372 Organic Chemistry II (3 cr) F & S (172)**
Continuation of 277. Prereq: 277.
- 374 Organic Chemistry II: Laboratory (1 cr) F & S (174)**
Lab to accompany 372. One 3-hr lab per wk. Prereq or coreq: 372.
- 376 Organic Chemistry II: Laboratory (2 cr) F & S (176)**
Primarily for majors. Lab to accompany 372, including qualitative analysis and modern instrumental techniques. Two 3-hr labs per wk. Prereq or coreq: 372.
- N377 Organic Chemistry (3 cr) SS (N177)**
Introductory organic chemistry with emphasis on topics which will aid in answering the questions of high school students.
- 409 Proseminar (1 cr) F (109)**
Current publications in chemistry and chemical engineering with reports on typical scientific papers. Prereq: 372 and sr standing.
- N411 Experimental Chemistry I (3 cr) SS (N111)**
Based largely on the CHEM Study Curriculum. The CHEM Study Curriculum texts and films are utilized. N411 should be followed by N412 the following summer. Two 4-hr sessions per wk.
- N412 Experimental Chemistry II (3 cr) SS (N112)**
The CHEM Study Curriculum, utilizing CHEM Study Curriculum texts and films. Two 4-hr sessions per wk.
- R413 Radiochemistry for Engineers (2 cr) F or S (R113)**
Primarily for engineers. Properties of nuclear particles, nuclear reactions, techniques of producing reactions, interaction of radiation with matter, and radiochemical techniques. Prereq: perm.
- 416 Methods in Radiochemistry (3-4 cr) F or S (116)**
Basic theory and practice in use of radionuclides; practical lab experience. Two lec and one or two 3-hr labs per wk. Prereq: 306 and Phys 114 or 210, or perm. Enrollment is limited by facilities.
- 417 Physical Chemistry of High Polymers (3 cr) F or S (217)**
Relationship of structure and properties of polymeric materials, the applications of thermodynamic principles to polymers and their solutions, and the kinetics of polymerization reactions. Prereq: 306.
- 435 Principles of Chemical Instrumentation (3 cr) F or S (135)**
One lec and two 3-hr labs per wk. Prereq: 253 or 256, Phys 212, or perm.
- 441 Chemical Literature (1 cr) F or S (141)**
Survey of important chemical reference works and periodicals with experience in the use of these sources. Prereq: perm.
- 454 Instrumental Analysis (4 cr) F or S (154)**
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. Two lec and two 3-hr labs per wk. Prereq: 253 or 256, 305, prereq or coreq: 306.
- N459 Analytical Principles (3 cr) SS (N159)**
Basic principles involved in analytical procedures and typical methods of analysis.

- 463 Inorganic Chemistry (3 cr) F or S (163)**
Principles; complexions and coordination compounds, theory of acids and bases, non-aqueous solvents; familiar elements and their relationship to the periodic table. Prereq: 305; prereq or coreq: 306 or perm.
- N463 Inorganic Chemistry (3 cr) SS (N163)**
Elements and their compounds; relationship between atomic structure and chemical properties; introduction to the modern theories.
- 464 Inorganic Chemistry Laboratory (1 cr) F or S (164)**
Lab to accompany 463. One 3-hr lab per wk. Coreq: 463.
- N470 Organic Chemistry (3 cr) SS (N170)**
Particular emphasis on applied organic chemistry.
- 473 Theoretical Organic Chemistry (3 cr) F or S (173)**
Physical properties, chemical bonds, stereochemistry, acid-base theory, and reaction mechanisms in organic chemistry. Prereq: 305 and 372; prereq or coreq: 306 or perm.
- 475 Qualitative Organic Analysis (3 cr) F or S (175)**
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.
- 480 Elements of Biochemistry (3 cr) F or S (180)**
Survey. Max 6 cr in any combination of 480, 481, and 482. Prereq: 112 or 114, 275 or 277.
- 481-482 Biochemistry (3 cr) F-S (181-182)**
Modern biochemistry. Max 6 cr in any combination of 480, 481, and 482. Prereq: 372 or perm.
- 483-484 Biochemistry Laboratory (1 cr) F-S (183-184)**
483 may accompany 480 or 481. One 3-hr lab per wk. Prereq: 276 or 278; coreq: 480, 481, or 482.
- 491 Research (1-6 cr) F & S (191)**
Prereq: perm of dept.
- 493 Molecular Structure and Quantum Chemistry (3 cr) F or S (193)**
Applications of quantum theory to chemical bonding, molecular spectroscopy, and molecular structure. Prereq: 306 or perm.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 501 Chemical Thermodynamics (3 cr) F or S (201)**
Classical thermodynamic properties and functions. Prereq: 306.
- 502 Statistical Thermodynamics and Chemical Kinetics (3 cr) F or S (202)**
Theory and application of statistical mechanical methods to chemical systems; collision theory and absolute reaction rate theory; kinetics of systems in the gaseous phase and in solution. Prereq: 501 or perm.
- WS503 Advanced Topics in Inorganic Chemistry (3 cr, max arr) F or S**
WSU 503. Recent significant developments. Prereq: 561.
- 505-506 Seminar (1 cr) F-S (205-206)**
Prereq: perm of dept.
- ID 507 Topics in Physical Chemistry (1-9 cr) F or S (207)**
Colloid chemistry; polarography; nuclear magnetic and electron paramagnetic

resonance; kinetics of irreversible processes; other topics not covered extensively in regularly-scheduled courses. Prereq: perm.

N508 Chemistry for High School Teachers (2 cr) SS (N208)

Acid base theory (Lowry-Bronsted and Lewis approaches), pH, buffer theory, oxidation and reduction, electrochemistry and introductory rate theory and introductory kinetics.

N509 Structure of Matter (3 cr) SS (N209)

Also offered as Phys N509. Nuclear structure, chemical periodicity, electronic structure of atoms, crystal structure, chemical bonding, atomic orbital theory, molecular orbital theory, structure of metals, intermolecular forces, and transition metal complexes.

N511 Principles of Theoretical Chemistry (3 cr) SS (N211)

Various topics of physical chemistry such as gas laws, equilibrium, electrochemistry, and kinetics.

513 Nuclear Chemistry (3 cr) F or S (213)

Introduction to artificial and natural radioactivity, tracer methods, and atomic energy. Prereq: 306 or Phys 331.

R516 Methods in Radiochemistry (3 cr) F or S (R216)

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 the radioactive elements. Prereq: perm.

N527 History of Chemistry (3 cr) SS (N227)

Development of the theories and laws of chemistry.

WS537 Advanced Topics in Physical Chemistry (2 cr, max arr) F or S

WSU 537. Selected subjects; irreversible thermodynamics; chemical bonding; NMR; ligand field theory; x-ray diffraction; neutron diffraction.

WS544 Advanced Topics in Organic Chemistry (3 cr., max arr) F or S

Alt yrs 1969-70. WSU 544. Current research. Prereq: 575.

553 Modern Analytical Methods (3 cr) F or S (253)

Absorption and emission spectroscopy, polarography, potentiometry, nuclear magnetic resonance, chromatography. Prereq: 306, 454, or perm.

555 Advanced Analytical Chemistry (3 cr) F or S (255)

Fundamental principles of classical analytical chemistry; homogeneous and heterogeneous equilibria, complexions; analytical separations, non-aqueous equilibria. Prereq: 306 or perm.

R557 Topics in Analytical Chemistry (1-6 cr) F or S

Techniques and methods not usually covered in 555; potentiometry, polarography, coulometry, and spectroscopic methods. Prereq: perm.

561 Advanced Inorganic Chemistry (3 cr) F or S (261)

Theoretical approach to the underlying principles of inorganic chemistry with an integration of theory and descriptive chemistry. Prereq: 306, 463, or perm.

563 Advanced Inorganic Chemistry Laboratory (2 cr, max 4) F or S (263)

Inorganic preparations utilizing aqueous, non-aqueous, and high vacuum techniques. Prereq or coreq: 561.

ID 565 Topics in Inorganic Chemistry (1-9 cr) F or S (265)

Coordination compounds; halogens; less familiar elements; clathrate, inter-

stitial, non-stoichiometric compounds; chemical bonding; inorganic reaction mechanisms. Prereq: perm.

WS568 Advanced Topics in Biochemistry (2 cr, max arr) F or S

WSU 568. Current research. Prereq: 482.

ID571 Topics in Organic Chemistry (1-9 cr) F or S (271)

Heterocyclic compounds, dyes and intermediates, industrial organic chemistry and other topics not covered extensively in regularly-scheduled courses in organic chemistry. Prereq: perm.

573 Organic Type Reactions (3 cr) F or S (273)

Mechanisms and synthetic uses of a wide variety of organic reactions.

574 Organic Preparations (2-4 cr) F or S (274)

Methods of research in organic chemistry; standard preparations and separations using advanced techniques; purity of products established by physical means. Prereq: 372.

575 Mechanisms or Organic Reactions (3 cr) F or S (275)

Nucleophilic substitution, reactions of carboxylic acids and esters, carbanions, electrophilic and nucleophilic aromatic substitutions, elimination reactions, addition reactions. Prereq: 306, 473.

576 Physical Organic Chemistry (3 cr) F or S (276)

Molecular structure and valency; physical methods of organic chemistry. Prereq: 306, 473; or coreq: 473.

N580 Biochemistry (3 cr) SS (N280)

Biological compounds, enzymes, biochemical energetics, and intermediary metabolism. Prereq: N470.

581 Carbohydrate and Lipid Chemistry (3 cr) F or S (281)

Also offered as AgBiC 581. Chemistry of carbohydrates, lipids, and related compounds. Prereq: 482.

582 Amino Acid and Protein Chemistry (3 cr) F or S (282)

Also offered as AgBiC 582. Chemistry of amino acids, proteins, and nucleoproteins. Prereq: 482.

ID583 Advanced Topics in Biochemistry (1-9 cr) F or S (283)

Recent research in enzymes, hormones, complex lipids, vitamins, nucleic acids, antibiotics, viruses, biochemical genetics. Prereq: perm.

N585 Biochemistry (3 cr) SS (N285)

Chemistry of living things and substances of which they are made; application to nutrition and to chemistry of basic life processes. Prereq: organic chemistry.

N586 Professional Problems (1-6 cr) SS (Chem N270; Phys N270)

Individual study in any field of chemistry. Prereq: perm.

600 Doctoral Research and Dissertation (cr arr) F & S (300)

CIVIL ENGINEERING (CE)

Robert L. Schuster (Department Chairman). Professors Hall, Janssen, Russell, Schuster, Smith, Warnick; Associate Professors Anderson, Haber, Hathaway, Junk, Lottman, Peebles, Sun, Wallace, Watts; Assistant Professor Brockway.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

111 Engineering Measurements (2 cr) F & S (51)

Primarily for engineering students. Theory and practice; types of errors, distribution of errors, measures of precision, principle of least squares, propagation of errors and dimensional analysis; application in elementary surveying. One lec and one 3-hr lab per wk. Prereq: Math 140, 141, Engr 101, or equiv.

112 Elementary Surveying (2 cr) S (53)

Primarily for non-engineering 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, 141, and Engr 101 or Arch 155 or Geog 251, or perm.

311 Surveying (3 cr) F (114)

Principles of route, land and construction surveying, engineering astronomy, triangulation, map projections and state plane coordinates; computer applications; introduction to photogrammetry and urban planning. Two lec and one 3-hr lab per wk. Prereq: 111 or 112.

317 Land Surveying (2 cr) F or S (117)

History and development; related laws; preparation and filing of property descriptions and plats; subdivision planning; methods for property surveys. Prereq: 111 or 112.

318 Photogrammetry and Photo-Interpretation (2 cr) F or S (118)

Primarily for non-engineering students. Principles of photogrammetry; geometry of single and stereoscopic pairs of aerial photographs; instruments and stereo-plotters; photo-interpretation as applied to problems in forestry and geology. Two 2-hr lec-labs per wk. Prereq: 111 or 112, or perm.

319 Photogrammetry and Photo-Interpretation (3 cr) F or S (119)

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; one field trip. Prereq: 111 or 112.

322 Hydraulics (3 cr) S (141)

Application of principles of fluid mechanics to problems in hydraulic engineering. Two lec and one 3-hr lab per wk. Prereq: ES 320.

341 Mechanics of Materials II (2 cr) F & S (104)

Applications of fundamentals as an introduction to design. Two 2-hr lec-labs per wk. Prereq: ES 340.

342 Theory of Structures (4 cr) F & S (120)

Analysis of stresses and strains in statically determinate and indeterminate beam, truss and rigid frame structures; effects of moving loads; matrix displacement method; seismic loads. Three lec and one 3-hr lab per wk. Prereq or preferably coreq: 341.

- 357 Engineering Materials Science (3 cr) F (108)**
Properties of engineering materials and basis for their behavior. Two lec and one 3-hr lab per wk. Prereq or coreq: ES 340.
- 360 Soil Mechanics (3 cr) S (110)**
Physical and mechanical properties of soils; behavior of soil structures under load; application to engineering problems. Prereq: ES 320 and ES 340.
- 370 Transportation Engineering I (2 cr) S (170)**
Traffic engineering; driver, pedestrian and traffic characteristics, traffic regulations and controls, study techniques, capacity determination, accident analysis, parking, and transportation planning. One 1-day field trip. Prereq: jr standing.
- 382 Engineering Economy (2 cr) F & S (153)**
Economic analysis and comparison of engineering alternatives by annual-cost, present-worth, capitalized cost and rate-of-return methods; income tax considerations. Prereq: jr standing.
- 401 Discrete Systems Analysis (3 cr) F or S (182)**
Approximate and numerical methods for solution of boundary value, initial value and eigenvalue systems with practical applications; errors, improvement of accuracy, numerical and matrix techniques for computation by digital computer. Prereq: sr standing.
- 421 Fluid Mechanics II (2-3 cr) F or S (144)**
Ideal and real fluid flow, dimensional analysis and similitude, potential theory and boundary layer theory. Prereq: ES 320.
- 422 Hydraulic Design (2 cr) F or S (142)**
Hydraulic problems involved in planning and design of gravity systems and pressure systems. One lec and one 3-hr lab per wk; one field trip. Prereq: AgE 351.
- 431 Sanitary Engineering (4 cr) F (131)**
Application of basic engineering sciences to treatment of domestic and industrial water supplies and treatment and disposal of domestic sewage and industrial wastes. Three lec and one 3-hr lab per wk. Prereq: ES 320.
- 432 Sanitary Engineering Techniques (3 cr) S (133)**
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.
- 441 Reinforced Concrete Design (3 cr) F (121)**
Emphasis on ultimate strength method in accordance with latest ACI building code. Two lec and one 3-hr lab per wk. Prereq: 341-342.
- 443 Structural Analysis (2 cr) F (125)**
Continuation of 342. Secondary stress analysis; plastic theory applied to steel. One lec and one 3-hr lab per wk. Prereq: 342.
- 444 Steel and Timber Design (3 cr) S (122)**
Members and joints; use of latest AISC and NLMA specifications; one-third on timber structures. Two lec and one 3-hr lab per wk. Prereq: 341-342.
- 468 Engineering Properties of Soils (2 cr) F or S (128)**
Measurement of physical properties of soils. One lec and one 3-hr lab per wk. Prereq: 360.
- 471 Transportation Engineering II (3 cr) F (171)**
Planning, design, construction, operation and maintenance of highways, airports, railroads, and waterways. Prereq: 370.

- 473 Highway Planning (2 cr) F or S (173)**
Traffic generation, growth, and assignment; origin-destination surveys and analysis; economic analysis; financing; construction programming. Prereq or coreq: 471.
- 474 Highway Design (2 cr) F or S (174)**
Non-structural visible elements; cross section, horizontal and vertical curvatures, intersections, interchanges, and access control. Prereq or coreq: 471.
- 481 Engineering Administration (2 cr) F (162)**
Planning, organization, management, and administration; methods, materials, production, and quality control; industrial and personnel relations. Prereq: sr standing.
- 484 Contracts and Specifications (2 cr) S (154)**
Development of law, courts, ethics; laws of contracts, agency, sales, property, patents; specifications; preparation of contract documents. Prereq: sr standing.
- 491 Seminar (0 cr) F & S**
Technical topics, employment practice and interviewing procedures. Field trips. To be taken during the last two semesters in residence. One meeting per wk.
- 493-494 Seminar in Urban Studies (2 cr) F-S**
See Inter 493-494 for description.
- 499 Civil Engineering Projects (1-3 cr) F & S**
Prereq: perm.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 521 Hydraulic Design (3 cr) F or S (242)**
Aqueducts, spillways and outlet works; design of a major structure. Two lec and one 3-hr lab per wk. Prereq: 422.
- 523 Water Resources Systems (3 cr) F or S**
Concepts in water development; coordination of development of water resources with development of other natural resources; systems approach and optimization techniques. Prereq: perm.
- 524 Water Resources Planning (3 cr) F or S (243)**
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.
- 531 Unit Operations of Sanitary Engineering (3 cr) F (233)**
Analysis and design of physical and chemical operations of water and waste treatment; flow models, sedimentation, flocculation, filtration, and water conditioning. Prereq: perm.
- 532 Unit Processes of Sanitary Engineering (3 cr) S (237)**
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.
- 534 Sanitary Engineering Analysis (2 cr) S (238)**
Theoretical and lab methods for development of design criteria for sanitary engineering systems. One lec and one 3-hr lab per wk. Prereq: perm.
- WS537 Environmental Health (2 cr) F or S (239)**
WSU 543. Vector control, refuse disposal, rural sanitation, water, and sewage systems, flood control and environmental health organization. Prereq: 431 or elementary bacteriology.

WS538 Industrial Hygiene and Air Sanitation (3 cr) F (240)

WSU 544. Industrial poisons, occupational hazards and diseases, fatigue, ventilation, illumination; causes and control of atmospheric pollution. Two lec and one 3-hr lab per wk. Prereq: 431.

WS539 Environmental Health Engineering Science (4 cr) F or S (236)

WSU 584. Role of microorganisms including bacteria, algae, fungi, and protozoa in water and waste treatment processes. Three lec and one 3-hr lab per wk. Prereq: perm.

541-542 Design of Structures I-II (3 cr) F or S (222, 221)

541: space frames, cables, curved girders and folded plates; model analysis; highrise building design. 542: arches, plate girders, composite construction, and floor systems with concentrated loads; prestressed concrete and thin shell design. Prereq: 441, 444.

543 Structural Dynamics (3 cr) F or S (223)

Analysis and design of reinforced concrete and steel structures for seismic, blast and mechanical disturbances. Prereq: 441, 444, Math 310.

544 Buckling in Structures (3 cr) F or S (225)

Analysis of elastic and inelastic stability of columns, trusses, rigid frames, plates and shells; lateral stability of beams. Prereq: 444, Math 310.

ID556 Physical Properties of Concretes (3 cr) F or S (206)

Binder and structure theories of aggregate and binder mixtures' application to portland cement and bituminous concretes. Two lec and one 3-hr lab per wk. Prereq: 357 or perm.

557 Strength Properties of Non-elastic Materials (3 cr) F or S (207)

Effects of loading time, temperatures, stress and strain on strength properties of materials, quantitative methods and applications for analysis of properties using concepts of complex and creep moduli, frequency-time domain, time-temperature super position, and transition temperature. Prereq: 357 or perm.

ID 561; 562 Advanced Soil Mechanics I-II (3 cr) F or S (210, 212)

ID 561: 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. 562: consolidation and seepage; theory, design and construction of shallow footings and earth embankments; slope stability analysis and control; soil exploration. Prereq: 360.

571 Transportation Engineering (2-3 cr) F or S (271)

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: 471 or perm.

572 Traffic Engineering (2-3 cr) F or S (272)

Urban street systems, traffic signals, signing, striping and illumination, mathematical statistics of traffic, freeway operations, warrants, accident analysis, traffic research and administration. Prereq: 471 or perm.

575 Pavement Design (3 cr) F or S (275)

Flexible and rigid pavements for highways and airports. Prereq: 471 or perm.

599 Directed Studies (1-4 cr, max 8) F & S (251)

Group or individual study. Prereq: perm.

600 Doctoral Research and Dissertation (cr arr) F & S

COMMUNICATIONS (Comm)

Gordon Law (Head), Associate Professor Cross.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

120 Mass Communications in a Free Society (2 cr) F & S (20)

Role of the media of mass communication; their performance and significance in a free society.

DAIRY SCIENCE—See Animal Industries

DRAMA (Drama)

Edmund M. Chavez (Head, Drama-Speech), Associate Professor Chavez; Assistant Professor Sears; Instructor Schattschneider.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

101 Introduction to the Theatre (2 cr) F & S (1)

For non-majors. Theatre history; recent trends in staging techniques and architecture; elements of production design; analysis of selected plays.

102 Stage Makeup (1 cr) F

Principles and practices; practical lab experience is provided.

105-106 Basics of Performance (2 cr) F-S (5-6)

Stage speech, movement, pantomime, and improvisation; work on relaxation, observation, imagination, and sense memory.

125 Summer Theatre I (2-4 cr) SS (25)

Theatre production, including public presentation of several plays. Max 10 cr in 125 and 395 combined. Prereq: perm of dept.

130 Drama-Television Production I (1-2 cr) F & S (30)

Rehearsal performance of a drama-television production; aspects of production; taping for presentation. Prereq: perm of dept.

190 Theatre Practice I (1 cr, max 4) F & S

Practical experience in all aspects of theatre practice. Open to non-majors.

263 Technical Production (3 cr) F (63)

Drafting methods, set construction, props, sound, painting, and use of tools.

- 264 Stage Lighting (3 cr) S (64)**
Equipment, methods of distributing light, color theory, basic electricity, reflection and absorption, and special effects.
- 265 Children's Theatre (3 cr) F (65)**
Selection, preparation and presentation of theatre for children; story telling, recreational and special occasion programs.
- 266 Creative Dramatics (2 cr) S (66)**
Selection, preparation and presentation of creative dramatics; practical application through working with children on the elementary-school level.
- 271 Play Analysis for Production (3 cr) F (71)**
Nature and structure of selected plays for dramatic production; tragic and comic genres.
- 272 Intermediate Acting (3 cr) S (72)**
Interpretation of roles, methods in characterization, and techniques for developing a character.
- 305 Stage Movement (2 cr) F (105)**
Alt yrs 1970-71. Fencing, rhythm and pantomime as basics for stage movement in interpreting classic and modern drama.
- 306 Diction and Dialect (2 cr) S (106)**
Alt yrs 1970-71. Stage diction and dialects most commonly used in the theatre.
- 320 Advanced Stage Lighting (2 cr) F**
Poetic and realistic functions of stage lighting; design of lighting for several plays. Prereq: 264.
- 330 Drama-Television Production II (1-2 cr) F & S (130)**
Continuation of 130. Prereq: perm of dept.
- 362 Costume for the Stage (2 cr) F (162)**
Costume design and construction for theatrical productions; development of period costumes and production problems.
- 364 Scene Design and Technical Problems (2 cr) S (164)**
Methods and techniques of stage design, including perspective, rendering, and styles of design; technical problems of specific productions.
- 390 Theatre Practice II (1 cr, max 4) F & S**
Continuation of 190; set construction, costumes, lights and properties. Open to non-majors.
- 395 Summer Theatre II (2 cr, max 8) SS (125)**
Continuation of 125. Max 10 cr in 125 and 395 combined. Prereq: perm of dept.
- 407-408 Styles of Acting (2 cr) F-S (107-108)**
Alt yrs 1969-70. 407: classic styles from the Greeks through Shakespeare. 408: Restoration through 20th-century styles.
- 420 Production Management (2 cr) S**
Publicity and promotion, business management, box office organization, house management, bids, contracts and budget problems in theatre organization.
- 467-468 The Theatre (3 cr) F-S (167-168)**
Survey of European and American theatres, dramatists and actors.
- 471-472 Directing (3 cr) F-S (171-172)**
Organization and techniques involved in directing.

- 500 Master's Research and Thesis (cr arr) F & S**
- 505 Summer Theatre III (2-8 cr) SS (205)**
Theatre production, including public presentation of several plays, emphasis on the responsibilities of the graduate student, including assisting the director, serving as crew head, and acting. Prereq: 20 cr in dramatics and perm of dept
- 520 Advanced Directing (3 cr) F or S (173)**
Genres of tragedy, comedy, drama, and melodrama; directorial problems in staging arena and musical productions.
- 522 Directing the Period Play (3 cr) S**
Interpreting and staging the period play in major dramatic periods; social and cultural view of each period.
- 524 The Modern Theatre (3 cr) F**
History of movements, personalities and representative plays from the Duke of Saxe-Meiningen to the theatre of cruelty.
- 560 Seminar in Dramatic Criticism (3 cr) S**
Analysis of past and present-day criticism of the drama; writing of dramatic practical work in such criticism.

ECONOMICS (Econ)

Max E. Fletcher (Head), Professor Fletcher; Assistant Professors Cooper, Ghazanfar, Lynch, McKean.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols

- 251-252 Principles of Economics (3 cr) F & S (51-52)**
251: organization and operation of the American economy; supply and demand; money and banking; employment and aggregate output; public finance; economic growth. 252: principles governing production, price relationships and income distribution. Prereq: soph standing for 251; 251 for 252.
- 321 Intermediate Microeconomic Analysis (3 cr) F & S (121)**
Theory of the individual firm, industry, market; price determination and allocation of productive resources. Prereq: 252 or perm.
- 372 Intermediate Macroeconomic Analysis (3 cr) F & S (122)**
Theory of the economy as a whole; national income accounting as a tool of analysis; national output and income; employment, price levels, and growth. Prereq: 252 or perm.
- 395 Fundamentals of Economics (4 cr) F**
Primarily for students in the Master of Business Administration program. Concepts underlying micro and macroeconomic analysis. Prereq: perm.
- 403 Money and Banking (3 cr) F & S (103)**
Theory, includes some emphasis on banking practices. Prereq: 252.
- 409 Public Finance (3 cr) F (109)**
Government expenditures and taxation; structure and economic effects of the American tax system; federal taxes; analysis of the tools of fiscal policy and public debts. Prereq: 252.

- 410 State and Local Government Finance (3 cr) S**
Criteria for and determinants of expenditures; equity, adequacy and economic impact of taxes; economics of metropolitanism and intergovernmental relations. Prereq: 252.
- 430 Regional Economics (3 cr) S**
Methods of economic analysis appropriate to regional problems; applications to the Pacific Northwest. Prereq: 321.
- 432 Quantitative Methods in Business and Economics (3 cr) S (Bus 160)**
See Bus 432 for description.
- 435 American Economic Development (3 cr) F (135)**
Long-term trends; transplanted of economic institutions from Europe; growth process in U.S.; welfare state and mixed economy. Prereq: 251 or perm.
- 436 Business and Economic Fluctuations (3 cr) S (Bus 193)**
See Bus 436 for description.
- 438 Advanced Statistics (3 cr) S (Bus 198)**
See Bus 438 for description.
- 441 Labor Economics and Labor Relations (4 cr) F & S (141)**
Also offered as Bus 441. History, wage theories, unemployment, union organization and structure, legislation, collective bargaining process. Prereq: 252 or perm.
- 442 Government Regulation of Business (3 cr) S (Bus 168)**
See Bus 442 for description.
- 444 International Commercial Policy (3 cr) S (Bus 172)**
See Bus 444 for description.
- 474 International Economics (3 cr) F (174)**
History and theory of international trade and finance; commercial policies of nations; current world economic problems. Prereq: 321.
- 477 Economics of Developing Countries (3 cr) F (177)**
Problems; characteristics of underdevelopment; role of innovation and investment; threat of population growth; barriers to growth; international programs for development; macroeconomic theories explaining the development process. Prereq: 252 or perm.
- 490 Comparative Economic Systems (3 cr) S (190)**
Origin, development, attributes of major contemporary economic systems. Prereq: 252.
- 493-494 Seminar in Urban Studies (2 cr) F & S**
See Inter 493-494 for description.
- 495 Honors Proseminar in Current Economic Problems (3 cr, max 6) F & S**
Economic problems of concern to the American people. Prereq: 251, sr standing, and perm of dept.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 502 History of Economic Thought (3 cr) S (202)**
Economic doctrines; value and distribution; 19th-century dissenters.
- 507 Research Methodology (3 cr) F**
See AgEcon 507 for description.
- 513 Seminar (3 cr) F & S (213)**
(a) Price Theory (b) Income and Employment Theory

- (c) Public Finance
- (d) Labor Economics
- (e) International Trade and Policy
- (f) Economics of Consumption
- (g) Economic Growth and Development
- (h) Monetary Theory and Policy
- (i) Welfare Economics
- (j) Contemporary Economic Problems
- (k) Comparative Economic Systems
- (l) Business Cycles
- (m) Extractive Industries
- (n) Statistics
- (o) Distribution Theory

Prereq: perm.

521 Advanced Microeconomic Theory (3 cr) F (221)

Also offered as AgEcon 521. Analysis of the economics of enterprise.

522 Advanced Aggregate Economics (3 cr) S (222)

Also offered as AgEcon 522. Current economic theory in national income, employment, price stability and economic growth in developed economics.

523 Advanced Monetary Theory (3 cr) S (223)

Also offered as AgEcon 523. Emphasis on the value of money.

524 Theory of Economic Development (3 cr) S (224)

See AgEcon 524 for description.

525 Introduction to Econometrics (4 cr) F (225)

See AgEcon 525 for description.

526 Business Conditions Analysis (3 cr) S

Social accounting and macroeconomic theory pertaining to economic forecasting and analysis.

EDUCATION (Ed)

Hervon L. Snider (Head, Department of Education); Professors Biggam, Duncanson, Farley, Kelly, Kirkland, Locke, Maib, Samuelson (Dean, College of Education), Shreve, Snider, Vent; Associate Professors Bell (Associate Dean), Carlson, Currie, Foster, Marten, Woolums, Wriggle; Assistant Professor L. Smith; Instructors Bradsaw, Clyde, Couch, Glenn, Jones, Madsen, R. Smith, Stevenson.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

PREREQUISITE TO UPPER-DIVISION COURSES — For registration in upper-division courses in education (those numbered 300 or above), a cumulative grade point average of 2.0 is required, unless a higher average is stated as a prerequisite in the course description.

101 Education Lectures (1 cr) F & S (1)

Orientation to the profession and fields of education.

190 Special Education Laboratory (1 cr, max 6) F & S (90)

Supervised observation and participation with exceptional children.

X273 International Education Scene (1-9 cr) X (X73)

Study-tour to observe selected educational systems and procedures in foreign countries. One credit per week.

275 Elementary School Art Methods (2 cr) F & S (75)

Materials and techniques; correlation of art with other subjects and activities.

- 287 Foundations of Education (4 cr) F & S (87)**
History; place of the school in the social milieu; principles under which schools are operated; contemporary educational philosophy. Three lec and one 3-hr. lab per wk.
- C302 The Child and Society (3 cr) C (C102)**
Child in the social milieu; family, social group, community, school; social pressures and conditioning upon the child and the educative process.
- 303 Kindergarten Education (2-3 cr) F & S (103)**
History, theory, equipment and practices; helping the child become oriented to school routine.
- 304 Indian Education Workshop (2 cr) SS (104)**
Heritage; improving education of Indians and non-Indians; techniques and programs.
- 305 Aerospace Education Workshop (2 cr) SS (105)**
Developments vital to our social, economic and political environment; classroom applications.
- 314 General Secondary School Methods (2 cr) F & S (114)**
Problems and methods of teaching common to all subjects. Prereq: 6 cr in education.
- 315 Secondary School English Methods (2 cr) F & S (115)**
Special methods, problems and materials. Prereq: 6 cr in education.
- 316 Secondary School Social Studies Methods (2 cr) F & S (116)**
Special methods, problems and materials. Prereq: 6 cr in education.
- 317 Secondary School Science Methods (2 cr) F & S (117)**
Special methods, problems and materials. Prereq: 6 cr in education.
- 318 Secondary School Mathematics Methods (2 cr) F & S (118)**
Special methods, problems and materials. Prereq: 6 cr in education.
- 319 Secondary School Art Methods (2 cr) F & S (119)**
Special methods, problems and materials. Prereq: 6 cr in education.
- 320 Primary Language Arts Methods (3 cr) F (120)**
Reading readiness; introducing the child to reading; extension of reading skills. Not open for credit to students who have taken 322 or 338. Prereq: 6 cr in education.
- 322 Intermediate Language Arts Methods (3 cr) S (122)**
Reading skills, vocabulary development, study habits, relatedness of the areas of language arts. Not open for credit to students who have taken 320 or 338. Prereq: 6 cr in education.
- 323 Health Education Methods (3 cr) F & S (123)**
Special methods and materials for junior and senior high school levels.
- 325 Art Methods Workshop (3 cr) SS (125)**
Development of school art program; problems and procedures.
- 326 Elementary School Mathematics Education (3 cr) F & S (126)**
Curriculum; availability and use of instructional materials and devices.
- C337 Secondary Social Studies Methods (3 cr) C (C137)**
Curricula in history, geography, American problems, sociology and economics; materials and devices.

C&X338 Methods and Materials in Language Arts (3 cr) C & X (C&X138)

The language arts program; reading, spelling, communication, handwriting; readiness, retardation, enrichment and selection of materials. Not open for credit to students who have taken 320 or 322.

341 Secondary School Foreign Language Methods (2 cr) F & S (141)

Special methods, problems and materials. Prereq: 6 cr in education.

375 Education of Exceptional Children (3 cr) F & S (175)

Methods, materials, curriculum and procedures for facilitating growth of crippled children, those defective in speech, hearing or vision, the maladjusted or mentally handicapped.

381 Elementary School Music Methods (2 cr) F & S (71, 124)

See Mus 381 for description.

406 Elementary School Team Teaching (3 cr) F & S (106)

Philosophy; organization; trends in building construction for team teaching; curriculum materials; role of teacher, pupils and auxiliary personnel.

411 The Junior High School (3 cr) F & S (111)

Principles; organization, administration, and methods of instruction.

421 Elementary School Social Studies Methods (2 cr) F & S (121)

Curriculum instructional materials and devices. One ½-day and one 1-day field trip. Prereq: 6 cr in education.

428 Audio-Visual Aids (3 cr) F & S (128)

Principles and methods of audio-visual education; administration of the audio-visual program in schools. Class limited to 25. Prereq: 8 cr in education.

429 Elementary School Curriculum (3 cr) F (129)

Overview; goals; curricula and techniques; place of skills and abilities; content areas, appreciative and creative programs. Prereq: 6 cr in education or perm.

430 Elementary School Student Teaching (3-9 cr) F & S (130)

Offered each 9 wks. Supervised student teaching in Idaho elementary schools. Prereq: 287, 320 or 322, 326, 445, Psych 205 or 421, cumulative GPA of 2.25 and perm of dept. (Submit application to director of student teaching by December 1 of school year prior to enrolling.)

431 Secondary School Student Teaching (3-9 cr) F & S (131)

Offered each 9 wks. Supervised student teaching in Idaho secondary schools. Prereq: 287, 314, 445, Psych 206 or 421, cumulative GPA of 2.25, and perm of dept. (Submit application to director of student teaching by December 1 of school year prior to enrolling.)

432 Music Student Teaching (3-9 cr) F & S (132)

Supervised student teaching in grades 1-12; two-thirds of the experience is in secondary schools. Prereq: 287, 314, 445, Psych. 206 or 421, cumulative GPA of 2.25, and perm of depts of music and education. (Submit application via coordinator of music education by December 1 of school year prior to enrolling.)

434 Children's Literature (3 cr) F & S (134)

For each grade level; story plays, dramatizations; effective reading and telling of children's stories and their place in the elementary school.

435 Elementary School Student Teaching — Special (3 cr) F & S (130a)

Primarily for secondary education students in art and physical education who wish to qualify for Idaho endorsement to teach these subjects at the elementary level. Prereq: 3 cr in special methods in the subject area.

- 436 Elementary School Reading (3-6 cr) SS (136)**
Teaching reading at the primary and intermediate levels. Not open for credit to students who have taken 528. Class limited to 25.
- 438 Elementary School Mathematics Laboratory (3 cr) F & S (232)**
Construction and solution to problems based on experiments that may be easily performed in elementary schools.
- 439 Comparative Education (3 cr) F & S (139)**
Educational systems in relation to the cultural backgrounds which gave rise to them.
- 440 Driver Education I (2 cr) S (140)**
Teaching methods; presented in cooperation with the American Automobile Association; successful completion of AAA requirements is required. Class limited to 20. Prereq: valid driver's license.
- 443 Teaching of Geography (3 cr) SS (143)**
Workshop. Trends, methods, audio-visual materials, planning the program, specialized skills, and forces contributing to change in geographic education.
- 444 Elementary School Science Methods (2 cr) F & S (144)**
Instructional materials and devices. One ½-day and one 1-day field trip. Prereq: 6 cr in education or perm.
- 445 Student Teaching Seminar (0 cr) F & S (145)**
Offered each 9 wks. Orientation to student teaching.
- 447 Advanced Aerospace Education (2 cr) SS (147)**
Advanced information concerning space and space flight. Prereq: 305.
- 448 Production and Use of Media in Education (3 cr) F & S (148)**
Production, utilization and organization of media in the student's field of interest. Prereq: experience in teaching.
- 449 Driver Education II (2 cr) F & S (149)**
Principles and practice of driver and traffic safety education for teachers, supervisors and administrators. Prereq: valid driver's license.
- 450 Children with Behavioral Disorders (3 cr) F & S**
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.
- 451 Education of Emotionally Disturbed Children (3 cr) F & S**
Models of organizing and teaching the emotionally disturbed; techniques of classroom management; techniques of behavior modification.
- 467 Developing Reading Efficiency (3 cr) F & S (167)**
Detection and correction of factors which interfere with the development of efficient reading.
- X473 International Education Scene (1-9 cr) X (X173)**
See X273 for description.
- 477 Teaching the Retarded Child (3 cr) F & S (177)**
Working with retarded and mentally-handicapped children.
- 478 Teaching the Mentally Retarded (3 cr) F & S (178)**
Techniques and instructional materials; slow learner; mentally retarded.

- 480 Special Education Student Teaching (9 cr) F & S (130b)**
Directed student teaching in classes for exceptional children. Submit application to director of student teaching by December 1 of school year prior to enrolling. Prereq: perm of dept.
- 487 Speech Correction Methods (3 cr) SS (187)**
Functional and organic speech disorders; functions and activities of classroom teachers in aiding children with speech handicaps.
- 490 Directed Study (1-3 cr, max 6) F & S (190)**
Prereq: perm
- 497 Teaching Gifted Children (3 cr) F & S (197)**
Identification and teaching of gifted children in elementary schools.
- 499 Instructional Television Institute (6 cr) SS (199)**
Preparation utilization and evaluation of telecourses. Previous experience not required.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 501 Elementary School Principals' Workshop (2 cr) SS (201)**
Consult the summer school bulletin for specific information.
- 502 School Administration Workshop (1-3 cr, max 6) SS (202)**
Consult the summer school bulletin for specific information.
- 503 Secondary School Principals' Workshop (1 cr) SS (203)**
Consult the summer school bulletin for specific information.
- 504 School Administration (3 cr) F (204)**
Principles and problems of organization and administration of city, county and state systems. Two field trips to inspect new school buildings.
- 505 School Finance (3 cr) S (205)**
Problems of financing schools; applications to Idaho problems. Prereq: 504.
- 506 Elementary School Administration (3 cr) F & S (206)**
Patterns of organization of grades 1-6; problems and techniques. Prereq: 10 cr in education and perm.
- 507 Supervision of Instruction (3 cr) F & S (207)**
To prepare supervisors of instruction so they can aid teachers in the improvement of instruction.
- 508 Secondary School Administration (3 cr) F & S (208)**
Problems of organization, administration and supervision of the secondary school; problems of small high schools.
- 509 Educational Television (2 cr) SS (209)**
Workshop; experience in educational innovations.
- 510 Philosophy of Education (3 cr) F (210)**
Analysis of educational objectives, concepts and theories.
- 511 Secondary School Curriculum (3 cr) F (211)**
Principles underlying curriculum construction in secondary schools.
- 512 Curriculum Construction (3 cr) S (212)**
Preparation of course of study outlines in the major subject matter areas. Prereq: 511 or 583, and perm.

- 513 History of Educational Thought (3 cr) F & S (213)**
Writings which have influenced educational theory and practice.
- 514 Development of Elementary Education (3 cr) F & S (214)**
Nature of education; ideas, journals and bibliographies for each of the main areas of the elementary curriculum.
- 515 Logic of New Media (3 cr) F & S (215)**
Technological development in education; advanced forms of media as they influence learning, teaching, and curriculum content and organization.
- 516 Teaching Reading (3 cr) F & S (216)**
Trends in the teaching of reading.
- 517 Advanced Elementary School Mathematics Education (4 cr) F & S**
Recently developed methods and materials in elementary school mathematics. Prereq: qualified for an elementary standard certificate.
- 519 Administration Procedures Workshop (3 cr) SS (219)**
Primarily for the prospective school superintendent; practical course.
- 520 Elementary School Science and Social Studies (3 cr) F & S (220)**
Methods and techniques; foundations of the unit as a means of instruction. Prereq: qualified for a standard elem certificate.
- 521 Elementary School Language Arts (3 cr) F & S (221)**
Research in the language arts and implications of data related to modern techniques of teaching. Prereq: qualified for a standard elem certificate.
- 522 Diagnostic and Remedial Instruction (3 cr) F & S (222)**
Methods and materials; problems of accelerations as well as retardation. Prereq: 430 or teaching experience.
- 523 Creative Arts and Creative Teaching (3 cr) F & S (223)**
Creativity in children; art, music, socio-drama-creative writing. Prereq: qualified for a standard elem certificate.
- 524 Special Education Practicum (1-6 cr) F & S (218, 224)**
- (a) Learning Disabilities
 - (b) Mental Retardation
 - (c) Education of Emotionally Disturbed Children
 - (d) Rehabilitation and Community Services
 - (e) Gifted Child
- Prereq: perm.
- X528 Reading Instruction and Improvement (3 cr) X (X228)**
Techniques of teaching reading in the lower and intermediate grades; problems of remedial reading through 12th grade; materials, procedures, testing and curriculum. Not open for credit to students who have taken 436.
- 530 Education Law (3 cr) S (230)**
Statutory and case materials; principles applicable to all states.
- 531 Elementary School Mathematics Education Research (3 cr) F & S**
Classic and contemporary research; experimental studies; rationale for position of specialist; objectives; coordination of services. Prereq: perm.
- 534 Elementary School Mathematics Practicum (9 cr) F & S**
The student serves as a full-time teacher of mathematics in a public school for

9 wks; teaches 4 classes each day and serves as consultant to other teachers.
Prereq: minimum of 1 yr teaching in elementary school and perm.

- 537 Special Education Internship (3-9 cr) F & S (237)**
Supervised field experience in an appropriate public or private agency; for doctoral students nearing the completion of their program.
- 538 Student Teacher Supervision (3 cr) F & S (238)**
Nature and scope of student teaching; role of cooperating agencies; role of participants; techniques, planning, evaluation.
- 539 College Teaching Internship (3 cr) F & S**
Primarily for doctoral students. Supervised teaching of undergraduate college-level courses. Prereq: perm of dept.
- 540 Special Education Seminar (3 cr, max 12) F & S (240)**
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|--|-------------------------------------|
| (a) Learning Disabilities | (g) The Gifted Child |
| (b) Mental Retardation | (h) Creativity |
| (c) Education of Emotionally Disturbed | (i) Sensory Impairment |
| (d) Diagnosis and Remediation | (j) Physically Handicapped Children |
| (e) Guidance of Exceptional Children | |
| (f) Speech Correction | |
- Research relating to special education.
- 541 Mental Retardation Trends and Issues (3 cr) F & S (241)**
Current research; innovative approaches to solutions; development of comprehensive community programs.
- 542 Guidance of Exceptional Children (3 cr) F & S (242)**
Personal and social problems of exceptional children and their families; techniques of working with them; working with parent groups.
- 545 Community Service Seminar (3 cr) F & S (245)**
Analysis of needed ancillary services; planning for and implementing community services; role of the educator on the interdisciplinary team.
- 546 Assessment of Learning Disorders (3 cr) F & S (246)**
Evaluation of techniques of assessment of handicapped children.
- 548 Special Education Curriculum (3 cr) F & S (248)**
Problems relating to the programming of handicapped; different curriculum approaches; practice in developing curricula for handicapped children.
- 549 Communication Disorders of Handicapped Children (3 cr) F & S (249)**
Analysis of language disorders in handicapped children; identification of sensory deficits; techniques for correction; theory of communication and its relationship to communication disorders.
- 550 Internship in Public School Teaching (3-9 cr) F & S**
Practicum in elementary and/or secondary school teaching. Prereq: admission to the program leading to the degree of Master of Arts in Teaching.
- 560 Research and Writing (3 cr) F & S (260)**
Techniques of research in education.
- 565 Seminar (3 cr, max arr) F & S (265)**
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|---------------------------|----------------------|
| (a) School Administration | (e) Personnel |
| (b) School Finance | (f) Public Relations |
| (c) School Supervision | (g) School Buildings |
| (d) School Law | (h) School Surveys |

Max 3 cr in 565 toward a master's degree; max 9 cr in a doctoral program. Prereq: 504 or perm.

- 566 Secondary Education Seminar (3 cr) F & S (266)**
Organization, administration, supervision, curriculum, activity program, personnel matters. Prereq: 10 cr in secondary education.
- 567 Elementary Education Seminar (3 cr) F & S (267)**
Field, function, curriculum, and organization of the elementary school. Prereq: qualified for a standard elem certificate.
- 572 Measurement and Evaluation (3 cr) S (272)**
Improvement of testing, examination and evaluation in schools; practice in making, giving, scoring, and interpreting tests; use of results in counseling.
- 580 Seminar in Administration and Contemporary Issues (3 cr) F & S**
See Inter 580 for description.
- 581 Professional Problems (cr arr) F & S (281-282)**
Prereq: perm of dept.
- 583 Curriculum Workshop (3-4 cr) SS (283)**
For teachers and school administrators; principles of curriculum development; writing of statewide courses of study, local school-system curricular programs and individual course materials.
- 584 Idaho Resources Workshop (8 cr) SS (284)**
Conducted in cooperation with Idaho State Department of Education. Units in conservation of natural resources, air-age education, and atomic energy education for state curriculum guides. One 1-wk field trip. Registration limited.
- 585 School Administration Internship (3-9 cr) F & S (285)**
Supervised internship in practical school administration. Prereq: perm.
- 587-588 Modern Techniques of Science Instruction in Physics (2 cr) F-S (287-288)**
See Phys 507-508 for description.
- 590 History of Education (3 cr) F & S (290)**
Development and influence of educational ideals and practices.
- 591 Administration of Personnel (3 cr) F & S (291)**
Selection, placement and evaluation of teachers; salaries and salary schedules; tenure; leave of absence; teacher organizations; and related matters.
- 592 Administration of Public Relations (3 cr) F & S (292)**
Interpreting the schools to the public; two-way flow of ideas between the school and community.
- 593 School Facilities Planning and Maintenance (3 cr) F & S (293)**
Planning new school facilities and maintaining them; legal provisions involving financing, preliminary surveys of need, relationships with architects, contractors. Two field trips.
- 594 Theory in School Administration (3 cr) F & S (294)**
Theories from psychological, sociological and cultural points of view; their application to school administration.
- 595 Higher Education (3 cr) F & S (295)**
College and university education in the U.S.; history, objectives, organization, finance, instructional methods, faculty, student problems.
- 600 Doctoral Research and Dissertation (cr arr) F & S (300)**

ELECTRICAL ENGINEERING (EE)

Donald E. Rathbone (Department Chairman). Professors Hattrup, Mann, Parish, Rathbone; Associate Professors Gray, Hagen, Hespelt, Rigas; Assistant Professors Baily, Shay; Stefanakos, Thomas; Instructor Fronck.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 200 Systems and Circuits (3 cr) F & S (21)**
Introductory course for engineering students. Includes signal flow, power and energy; transient and steady state behavior of circuit elements; network theorems; integrated treatment of ac and dc circuits. Prereq: Math 180.
- 201 Network Analysis (4 cr) F & S (30)**
The complex frequency domain; coupled circuits; resonance phenomena; poly-phase; two-port theory; Fourier analysis of non-sinusoidal excitations and responses. Three lec and one 3-hr lab per wk. Prereq: 200.
- 300 Transients in Linear Systems (4 cr) F & S (106)**
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.
- 305 Transmission Lines (3 cr) F or S (158)**
Transmission of signals and power in distributed parameter circuits; characteristic impedances, attenuation, phase shift, reflections, Smith charts and power circles. Prereq: 201.
- 310 Electronics I (5 cr) F & S (122)**
Qualitative survey of electronic circuits and devices; external electrical characteristics of circuits and devices; amplifiers, oscillators, rectifiers, switching circuits. Four lec and one 3-hr lab per wk. Prereq: 201; coreq: 300.
- 311 Electronics II (3 cr) S (123)**
Physical and electrical characteristics of electronic devices; physics of devices; electron ballistics, thermionic emission, gaseous conduction and solid state electronics. Prereq: 310.
- 314 Electronics and Control Systems (2 cr) F & S (114)**
For non-majors. Electronic devices and systems; introduction to control theory. Prereq: 200.
- 315 Electronics Laboratory (1 cr) F & S (116)**
Companion to 314. One 3-hr lab per wk. Prereq or coreq: 314.
- 320 Energy Conversion I (5 cr) F & S (133)**
Theory and applications of electrical machinery and transformers. Four lec and one 3-hr lab per wk. Prereq: 201; coreq: 300.
- 321 Energy Conversion II (3 cr) S**
Plasma-MHD concepts; fission, nuclear reactor theory; fusion; fuel and solar cells. Prereq: 300; coreq: 330.
- 323 Basic Electrical Machinery (2 cr) F & S (133)**
For non-majors. Magnetic circuits and electromechanical energy converting systems; theory and characteristics of common ac and dc machinery. Prereq: 200.

- 324 Electrical Machinery Laboratory (1 cr) F & S (115)**
Companion to 323. One 3-hr lab per wk. Prereq or coreq: 323.
- 330 Electromagnetic Theory (5 cr) F & S (149)**
Laplace and Poisson equations; Maxwell's equations; wave propagation and radiation; wave-guides, microwaves, microwave tubes, antennas; fields in thin films; relativistic facts; electromagnetic theory of light. Four lec and one 3-hr lab per wk. Prereq: Math 310.
- 391 Junior Seminar (0 cr) F & S,**
Curriculum options, elective courses, preparation for graduate study, and current technical topics. A field trip may be required.
- 401 Advanced Circuit Theory (3 cr) F or S (209)**
Network theory; behavior and analysis of passive and active electrical networks, use of linear graph theory and digital computers in network analysis; network synthesis. Prereq: perm.
- 411 Pulse and Digital Circuits (3 cr) F or S (275)**
Electronic switching, timing and pulse shaping techniques using capacitor energy storage. Prereq: 310.
- 412 Pulse and Digital Networks (3 cr) F or S (276)**
Design of pulse and digital circuits in special purpose electronic networks; use of integrated circuit modules in the realization of sequential networks. Two lec and one project-type lab per wk. Prereq: 411.
- 421 Power System Analysis (3 cr) F or S (154)**
Broadly based course aimed at problem recognition and basic analysis for the modern interconnected power system; energy supplies, voltage control, fault control, reliability, economics, and stability; per unit calculations; introduction to symmetrical components. Prereq: 320.
- 422 Computer Methods in Power Systems (3 cr) F or S**
Use of analog and digital computers in the solution of load flow, short circuit and stability problems. Prereq: 421 or perm.
- 435 Antennas and Microwave Devices (3 cr) F or S (182)**
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.
- 440 Digital Systems Engineering (3 cr) F & S (179)**
Basic concepts of Boolean algebra; logic components; combinational and sequential systems analysis; number and coding systems; principles and operations of subsystems of a digital system. Prereq: jr standing.
- 445 Analog Computer Methods (3 cr) F or S**
Introduction to simulation methods for analysis of complex dynamic systems; illustration of modern simulation methods by project-type problems. Background in elementary analog computers is assured. Prereq: perm.
- 450 Random Processes and Systems (3 cr) F or S**
Random variables; auto and cross correlation functions; spectral analysis; shot and thermal noise; noise figures, optimum linear systems filtering. Prereq: Math 310.
- 452 Communication Systems (3 cr) F or S (165)**
Linear (amplitude) modulation, exponential (frequency, phase) modulation, pulse modulation techniques, noise; introduction to information theory. Prereq: 310.

- 460 Introduction to Network Flow Analysis (3 cr) F or S**
 Mathematical programming models for networks; linear and non-linear programming; optimal network flows; min-cut max-flow theorem; transportation, transshipment and assignment problems; special algorithms. Prereq: Math 310.
- 470 Control Systems (5 cr) F & S (175)**
 Theory for analysis and design; frequency-response, root-locus, computer techniques; stability criteria; modern systems theory; state-space and multiple-input multiple-output systems. Four lec and one 3-hr lab per wk. Prereq: 300, 310, 320.
- 473 Control Applications (3 cr) F or S (155)**
 Control theory as applied to ac, ac-dc, and digital systems; network and computer compensation; inertial navigation and/or other special purpose systems. Two lec and one 3-hr lab per wk. Prereq: 470 or perm.
- 476 Classical Techniques in Control (3 cr) F or S (231)**
 Chen's methods, linear systems compensation techniques, multiple input-multiple output systems, parameter variations; nonlinear control systems, phase-space concepts, describing functions; basic sample-data control systems concepts, Z transforms, stability. Prereq: 470 or equiv.
- 478 Aerospace Systems Engineering I (3 cr) F or S**
 Vehicle equations of motion; dynamic performance and stability; mission performance problems; attitude stabilization and control. Prereq: 470.
- 480-481 Principles of Design (3 cr) F-S**
 Includes computer-aided techniques, economics, marketing, reliability, and patents; projects require original design, working model and report. Prereq: sr standing.
- WS483 Solid-State Electronics (3 cr) F or S**
 WSU 496. Semiconductors, ferrites, dielectrics; adaptation to engineering applications.
- 491 Senior Seminar (0 cr) F & S**
 Technical topics, employment practice and interviewing. One lec per wk; one 3-6 day field trip.
- 493 Thesis (3 cr, max 6) F & S**
 Original investigation or dissertation upon some subject in electrical engineering. Prereq: sr standing.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 502 Network Synthesis (3-4 cr) F or S (210)**
 Synthesis of active and passive electrical networks; passive one-port and two-port networks; practical limitations on performance and realizations; introduction to multi-port synthesis. Prereq: 401 or perm.
- 505 Nonlinear Network Analysis (3 cr) F or S**
 Transient and steady-state analysis via approximation methods; describing functions, harmonic balance techniques; perturbation methods; numerical analysis methods using digital computers. Prereq: 300, 470, and ability to use digital computation facilities.
- 507 Computer-Aided Network Design (3 cr) F or S**
 Use of digital computers in design of electrical networks; digital computer as analysis tool in design process; constrained and unconstrained optimization in network design. Prereq: ability to use digital computation facilities.

ID512 Active Network Synthesis (3 cr) F or S

Active devices and their operating characteristics; classical network synthesis; two-port theory, amplifiers, filters, negative impedance converters, realization of complex poles, synthesis of active filters and oscillators. Prereq: 310, 502.

515 Advanced Engineering Electronics (3 cr) F or S

Physical processes and phenomena in semiconductors; Linear two-port models, properties of systems containing two-port elements; selection of terminations for optimizing the power gain of a two-port element; stability of linear systems, sensitivity of performance to parameter variations, contaminating signals in amplifiers. Prereq: 311.

520 Advanced Electric Machinery (3 cr) F or S (204)

Synchronous machines and transformers; machine transient and subtransient reactances, excitation and voltage regulation, power curves; transformer connections, impedance, harmonics, impulse characteristics. Prereq: 320.

521 Power System Stability (3 cr) F or S (205)

Steady-state and transient stability; power flow equations, transient stability swing curves, relaying and protection. Prereq: 421.

523 Symmetrical Components (3 cr) F or S (218)

Concepts of symmetrical components applied to design and analysis of power systems; sequence impedances of devices and lines, circuit equivalents for unbalanced faults, system voltage and current calculation, management during faults. Prereq: 421.

524 Transients in Power Systems (3 cr) F or S

Electric voltage transients in power system circuits; overvoltages during faults, recovery voltage characteristics, arc restriking, switching surges, ferroresonance, nonlinear phenomena. Prereq: 421.

ID526 Electronic Power Converters (3 cr) F or S

Use of electronic devices for control of electric machines and power systems; characteristics of power transistors, SCR's and power diodes, circuit configurations for rectifiers, inverters, motor controllers, frequency changers, etc.; analysis and design of circuits, economic considerations, comparisons with classical methods of control. Prereq: perm.

530-531 Electromagnetic Field Theory I-II (3 cr) F or S (202-203)

530: solution of static field problems; Laplace and Poisson equations for various charge configurations. 531: time-varying fields, radiation, propagation in anisotropic and layered media; vector and scalar potentials, retarded potentials; general relativity theory. Prereq: 330 for 530; 530 for 531.

533 Antenna Theory (3 cr) F or S (227)

Linear, loop and special antennas; synthesis and arrays; microwave reflectors and lenses. Prereq: 531 or perm.

535 Microwave Circuits (3 cr) F or S (214)

Waveguide systems and components, oscillators and detectors; masers, parametric amplifiers and other related methods. Prereq: 531 or perm.

537 Plasma Dynamics (3 cr) F or S (208)

Conduction in gases, statistical methods in describing motion of charged particles in electromagnetic fields; application to microwave propagation, fusion, and magnetohydrodynamics. Prereq: 531 or perm.

- 540 Computation Structures and Machine Organization (3 cr) F or S**
 Design of digital computing systems: subsystems and their realizations; time-shared, parallel and highly parallel computer system design; modular organization of hardware; associative and pseudo-associative memories; address transformation; models of program structure. Prereq: 440.
- 541 Theoretical Foundations in Computers (3 cr) F or S**
 Finite-state automata; computability according to Turing; properties and capabilities of synchronous and asynchronous, completely and incompletely specified machines; Kleene's approach to machine specification; non-writing, push-down store and probabilistic automata. Prereq: 440.
- 543 Mathematical Theory of Computation and Symbol Manipulation (3 cr) F or S**
 Programming and numerical techniques; machine language programming; assemblers; arrays, lists, searching; string processing languages; recursion algebraic expressions, input-output fundamentals, and computer arithmetic. Prereq: perm.
- 546 Simulation Techniques (3 cr) F or S**
 Digital and hybrid simulation; logical problem division; theory of models, design of simulation programs, Monte Carlo techniques; queueing, traffic, other system models. Prereq: perm.
- ID550 Communication Theory I (3 cr) F or S**
 Discrete view of communications, optimum receiver principles; channel constraints, binary communication techniques; fading and scattering media, diversity techniques; optimum reception of continuous wave-form modulated signals; phase-locked loops. Prereq: 450.
- ID551 Communication Theory II (3 cr) F or S**
 Hypothesis testing; optimum detection of signal in noise; sequential detection; maximum likelihood estimation; spatial processing; data reduction techniques. Prereq: 450.
- 554-555 Information Theory I-II (3 cr) F or S (229)**
 554: information and uncertainty measure; discrete, memoryless channels, noiseless and with noise; noiseless coding, unique decipherability and optimal codes for noiseless channels; error correcting codes. 555: further theory of error correcting codes; channels with memory, continuous channels; reliable transmission through unreliable channels. Prereq: 450 for 554; 554 for 555.
- 565 Dynamic Programming, Markov Processes and Queueing Theory (3 cr) F or S**
 Discrete and continuous-time decision processes; application of queueing theory, Poisson and exponential distributions; Markov chains and optimal Markovian decision rules. Prereq: 450.
- 572 Modern Control Theory (3 cr) F or S**
 Modern control concepts; controllability, observability and stability; relation between modern control theory and classical control theory. Prereq: 470, Math 184.
- 574 Optimal Control Theory I (3 cr) F or S**
 Definition; classical variational approach; maximum principle of Pontryagin; Hamilton-Jacobi theory; minimum time and minimum fuel problems; design of optimal linear systems using the Matrix Riccati equations. Prereq: 572.
- 575 Optimal Control Theory II (3 cr) F or S**
 Prediction theory; optimal Bayesian control of general stochastic dynamic sys-

tems; adaptive control systems and optimal control policies; estimation and identification. Prereq: 450, 572.

578 Aerospace Systems Engineering II (3 cr) F or S

Attitude control, stabilization and guidance requirements for representative space and atmospheric manned flight missions. Prereq: 478.

WS581-WS582 Wave Propagation I-II (3 cr) F or S (251-252)

WSU 528-529. 581: theory of radio wave propagation in a magnetoionic medium; application to communication problems involving earth's ionosphere. 582: phenomena occurring within the solar-terrestrial environment; effects on radio wave propagation.

WS583 Artificial Intelligence and Heuristic Programming (3 cr) F or S

WSU InfS 501. Normative and descriptive models of intelligent processes; programming languages used to specify these models.

WS584 Modeling and Simulation of Biological Systems (3 cr) F or S

WSU InfS 510.

WS585 Advanced Topics in Information Processing (3 cr, max 6) F or S

WSU InfS 520.

590 Seminar (1-3 cr, max 6) F & S

Topics for discussion selected from various fields of interest.

ID595 Directed Study (1-6 cr, max 12) F & S

Special topics; opportunity for graduate students and faculty members to investigate current topics of common interest; topic to be announced each term. Prereq: perm.

ENGINEERING (GENERAL) (Engr)

Roland O. Byers (Chairman). Professor Byers; Associate Professor Turner; Assistant Professors Morgan, Tovey, Instructor Shaw.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

General Engineering is one of the subject-matter fields within the College of Engineering.

101 Engineering Graphics (2 cr) F & S (1)

Visualization of points, lines, planes, solids in space; sketching, orthographic projection, pictorial representation, charts and graphs, lettering; some drafting techniques and methods.

102 Engineering Graphics (2 cr) F & S (2)

Descriptive geometry; technique of solving problems involving points, lines, planes, surfaces in space; application to graphical problems in engineering and other fields. Prereq: 101 or Geog 251.

106 Survey of Engineering (2 cr) F (6)

Fields of engineering; introduction to elements of design.

111 Engineering Computations (1 cr) F & S (11)

Principles and use of slide rule. Prereq: Math 140-141 (or with 141).

131 Digital Computer Programming (1-2 cr) F & S (31)

Principles and logic; flow charts; one and two dimensional arrays; function and subroutine subprograms; application to problem solving.

R314 Advanced Engineering Graphics (2 cr) F & S (114)

Industrial drafting practices; curve plotting; creative problems; sketching; production illustrations; graphical mathematics; nomography; graphical integration and differentiation. Prereq: 101.

X&R411 Engineering Fundamentals (3 cr) X & R (X&R111)

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. (May not be used toward an engineering degree.) Prereq: engineering degree or perm.

ENGINEERING SCIENCE (ES)

George L. Bloomsburg (Chairman), Professor Bloomsburg; Associate Professors Haber, Scheldorf, Sun; Assistant Professor Abbas.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

Engineering Science is one of the subject-matter fields within the College of Engineering.

210; 220 Mechanics I-Statics; II-Dynamics (2 cr) F & S (66; 69)

210: composition and resolution of forces; Newton's laws as they pertain to equilibrium; vector analysis; free body diagrams, centroids and moments of inertia; applications include trusses, frames and friction. 220: kinetics; acceleration analysis; systems of particles; work and energy, momentum, impulse, power in systems with linear and angular motion. Prereq: Phys 210 and with Math 190 for 210; ES 210 and with Math 200 for 220.

320 Fluid Mechanics (3 cr) F & S (102)

Physical properties of fluids; fluid statics; continuity, energy, momentum relationships; laminar and turbulent flow; boundary layer effects; flow in pipes, open channels and around objects. Prereq: 220, Math 200.

321 Thermodynamics and Heat Transfer (3 cr) F & S (120)

First and second laws of thermodynamics; thermodynamic processes, thermodynamic properties of fluids; flow processes; conversion of heat into work; refrigeration; conduction, radiation. Prereq: Phys 210, jr standing.

340 Mechanics of Materials (3 cr) F & S (103)

Elasticity, strength and modes of failure of engineering materials; theory of stresses and strains for ties, shafts, beams, columns. Prereq: 210, Math 200.

401 Engineering Statistics (3 cr) F or S (CE 180)

Concepts and applications of probability and statistics; discrete and continuous distributions and their applications to confidence interval estimates, design of experiments, quality control, linear regression in engineering problems. Prereq: Math 200.

- 501 Engineering Statistics (1-3 cr) F or S (CE 280)**
Theory of probability, statistics and stochastic processes applied to selected areas of engineering. Prereq: 401 or perm.
- 540 Continuum Mechanics (3 cr) F or S (202)**
Stress and deformation of continua using tensor analysis; relationship between stress, strain and strain rate in fluids and solids; applications. Prereq: perm.
- 541 Foundations of Solid Mechanics (3 cr) F or S (201)**
Analysis of stress and strain, equations of equilibrium, compatibility, elasticity; solutions of problems by stress functions and energy methods; theory of plasticity and viscoelasticity; application to design. Prereq: 340 or perm.

ENGLISH (Eng)

Leo F. Storm (Head), Professors Boone, Kirtley, Storm; Associate Professors Henningham, Meldrum, Tenney, Tung; Assistant Professors Barber, Davis, Foriyes, Gilbertson, Malek, Tanner; Instructors Befus, Bie, Bush, Eden, Elwood, Fagan, Frey, McKie, Michel, Otness, Raunio, Sharp.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

PREREQUISITES: Except for 101-102, students may enroll for a second-semester course without having had the first-semester course, unless it is a stated prerequisite to the second-semester course. 101-102 are prerequisite to all other courses except 111-112. A transfer student who lacks 101 or 102, or both, may take either or both for credit even though he has already taken a literature course for which 101-102 are prerequisite here.

- 101-102 English Composition (3 cr) F & S (1-2)**
101: rhetoric and expository writing. 102: the research paper and analysis of literary materials. (Students in need of special instruction may be assigned to do additional work in the English clinic or in reading techniques.)
- 111-112 Literature of Western Civilization (3 cr) F & S (11-12)**
Masterpieces reflecting the development of Western thought and culture. May be taken with 101-102.
- 253 Expository Composition (3 cr) F & S (53)**
Development of additional skill in general, nonliterary writing. Not open for credit to students who have taken 493. Prereq: 101-102.
- 267-268 Survey of English Literature. (3 cr) F-S (67-68)**
267: Beowulf to Samuel Johnson. 268: Robert Burns to contemporary writers. Prereq: 101-102.
- 277-278 Survey of American Literature (3 cr) F-S (77-78)**
277: colonial beginnings to Melville. 278: Whitman to contemporary writers. Prereq: 101-102.
- 291-292 Literary Composition (3 cr, max 12) F-S (91-92)**
Principles and techniques; emphasis on narrative prose. Prereq: above average ability in writing, some familiarity with literature, and perm.
- 313 Business Writing (3 cr) F & S (113)**
Correspondence and reports; form, content, and style. Prereq: ability to type is desirable.

- 317 Technical and Engineering Report Writing (3 cr) F & S**
Principles of clear writing related to technical style; problems in the technical article, formal engineering reports, and business letters.
- 421 Development of the English Novel (3 cr) F (121)**
Major writers from the beginnings to Scott.
- 422 The Nineteenth-Century English Novel (3 cr) S (122)**
Dickens to Hardy.
- 426 Modern Poetry (3 cr) F or S (126)**
- 427 American Fiction in the Twentieth Century (3 cr) F or S (127)**
- 428 British Fiction in the Twentieth Century (3 cr) F or S (128)**
- 433 Chaucer (3 cr) F (133)**
Introduction to Chaucer's poetical works except *Troilus and Criseyde*.
- 434 Middle English Literature (3 cr) S (134)**
Alt/yrs 1970-71. Middle English language and literature to 1500, exclusive of the works of Chaucer and of medieval drama.
- 435 Shakespeare: Comedies and Histories (3 cr) F (135)**
- 436 Shakespeare: Tragedies and Romances (3 cr) S (136)**
- 437 English Drama to 1642 (3 cr) F (137)**
Alt/yrs 1970-71. 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.
- 438 English Drama, 1660-1800 (3 cr) S (138)**
Alt/yrs 1969-70. Heroic play and tragedy; sentimental drama; comedy of manners.
- 439 Modern English and American Drama (3 cr) F or S (139)**
Plays of the chief 20th-century English and American dramatists.
- 441 American English (3 cr) F & S (141)**
Phonemes, morphology, syntax, and dialects of American English.
- 442 Introduction to Linguistics (3 cr) F (142)**
Descriptive and historical study of language; linguistic analysis and structure; language classification and families; language in social and cultural setting.
- 443 Studies in Linguistics (3 cr) S (143)**
(a) Basque (b) Nez Perce
Alt/yrs. Principles of linguistic description (phonemic and morphemic analysis and grammar discovery procedures) and linguistic field work by focusing on the language indicated by the subtitle.
- 444 English for Teachers (3 cr) F or S (144)**
For students who have taught or plan to teach English.
- 445 Literature for Young People (3 cr) F or S (145)**
Primarily for students working for teacher or library certification. Reading and appraisal of literature appropriate to the needs, interests, and abilities of young people.
- 447 Applied Linguistics (3 cr) F or S (147)**
Recent research in linguistics and its application to language study, spelling, reading, literature, composition, and oral English.

- 451 The Poetry of Spenser and his Age (3 cr) F (151)**
Alt/yrs 1969-70.
- 452 Milton and His Age (3 cr) S (152)**
Major works of Milton and selected other poets of his age, including the Metaphysicals.
- 453 Seventeenth-Century Literature in Prose (3 cr) F or S**
Alt/yrs 1969-70. Evolution of 17th-century prose from Bacon to Dryden, including Browne, Overbury, Burton, Donne, Andrews, and Milton.
- 455 The Age of Dryden and Pope (3 cr) F (153)**
Neoclassical temper and the literature of the middle class: Dryden, Pope, and prose writers.
- 456 The Age of Johnson (3 cr) S (154)**
Rational spirit and growth of sensibility as found in Swift, Johnson, and Blake.
- 465 The Romantic Period (3 cr) F (165)**
Beginnings in the 18th century to 1832; major writers with emphasis on the changing artistic, social, and philosophical attitudes of the period.
- 466 The Victorian Period (3 cr) S (166)**
Great writers of the era, their interpretation of the life and ideals of their time, their relation to one another, and their influence on their own and succeeding times.
- 471 Poe, Hawthorne, and Melville (3 cr) F or S (171)**
Major works and genres of three authors to delineate their ethos and artistry in relation to the American Renaissance. Prereq: 277.
- 472 Emerson, Thoreau, and Whitman (3 cr) F or S (171)**
Major works and genres of three authors to delineate their ethos and artistry in relation to the American Renaissance. Prereq: 277.
- 473 Literature of the American West (3 cr) F (173)**
Writings that reflect the growth of the western United States from frontier days to the present.
- 474 Growth of American Realism, 1865-1914 (3 cr) S (172)**
Prereq: 278.
- 476 American Folklore (3 cr) S (174)**
Forms, including ballads and folksongs, known in the U. S.; their collection and study with special attention to their appearance in American literature.
- 481 Directed Reading (1-3 cr) F & S**
Prereq: perm of dept.
- 487-488 Modern European Literature (3 cr) F & S (187-188)**
Alt/yrs 1969-70. Readings in translation of the chief European writers, with emphasis on the 19th and 20th centuries and including drama.
- 491-492 Advanced Literary Composition (3 cr, max 12) F-S (191-192)**
Continuation of 291-292. Prereq: 291 or 292 and perm.
- 493 The Rhetoric of Exposition (3 cr) F or S**
Advanced theory and practice in the methods of organization in expository prose. Not open for credit to students who have taken 253. Prereq: perm of dept.
- 495 Literary Criticism (3 cr) F or S (195)**
History of literary criticism from Plato to the present; critical practice represent-

ing various schools and techniques; practice in applying critical methods to selected poems, fiction and drama.

- 496 History of the English Language (3 cr) F or S (196)**
Evolution of the English language from Proto-Germanic to American English.
- 497 History of Books and Libraries (3 cr) F or S (197)**
Book production and arts; development of libraries from the classical world to the present as conditioned by their social and cultural setting. May not be used for the B.A. (English major), or for the English teaching major or minor.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 501 Problems and Methods of Literary Study (3 cr) F (201)**
- 507 Old English (3 cr) F or S (207a)**
Prereq: 441, 442, 496, or perm.
- 508 Middle English (3 cr) F or S (207b)**
Prereq: 441, 442, 496, or perm.
- 509 Early and Late Modern English (3 cr) F or S (207c)**
Prereq: 441, 442, 496, or perm.
- 525 Renaissance Proseminar (3 cr, max 9) F or S**
(a) 16th-Century Poetry and Prose
(b) 17th-Century Poetry and Prose
(c) Elizabethan and Jacobean Drama
- 526 American Proseminar (3 cr, max 12) F or S**
(a) Before 1860
(b) Late 19th Century
(c) 20th Century
(d) Drama
- 527 Proseminar (3 cr, max 12) F or S (227)**
(a) Middle Ages (Beginnings to 1485)
(b) Restoration and 18th Century (1660-1800)
(c) Romantic (1789-1830)
(d) Victorian (1830-1901)
(e) Modern English
- 528 Proseminar (3 cr, max 12) F or S (228)**
(a) Poetry
(b) Drama
(c) Satire
(d) Folklore
(e) Criticism
(f) Western American
Literary genre and mode as indicated by the subtitle.
- 535 Renaissance Seminar (3 cr, max 12) F or S**
(a) Spenser
(b) Shakespeare
(c) Donne
(d) Milton
- 536 American Seminar (3 cr, max 12) F or S**
(a) Melville
(b) Thoreau
(c) James
(d) Twain
(e) Faulkner
(f) O'Neill
(g) Lewis
- 537 Seminar (3 cr, max 12) F or S (237)**
(a) The Beowulf Poet
(b) Chaucer
(c) Dryden
(d) Pope
(e) Swift
(f) Johnson
(g) Wordsworth
(h) Coleridge
(i) Keats
(j) Browning
(k) Arnold
(l) Dickens
(m) Yeats
(n) Lawrence
(o) T. S. Eliot
(p) Conrad

547 Seminar in the Teaching of Composition (0 cr) F or S

Primarily for graduate instructional assistants in English; open to others by perm of the director of freshman English.

550 Directed Reading (1-3 cr, max 6) F & S

- (a) English Literature (Beginnings to 1500)
- (b) English Literature (1500-1660)
- (c) English Literature (1660-1800)
- (d) English Literature (1800 to Present)
- (e) American Literature
- (f) Linguistics

Directed study and research in the fields as indicated by the subtitle. Prereq: perm and perm of dept.

ENTOMOLOGY (Ent)

A. R. Gittins (Head), Professor Barr, Associate Professors Bishop, Gittins, Smith, Schenk, Assistant Professor Brusven.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

X121 Applied Entomology (3 cr) X (X53)

Identification, life history and control of insect pests in the Pacific Northwest; for students interested in the biology and control of pest insects.

211 General Entomology (4 cr) F (55)

Structure, development, classification, habits and ecology of insects. Two lec and two 2-hr. labs per wk. (GITTINS)

314 Entomology for Biology Teachers (3 cr) S (132)

Use of insects in illustrating biological principles; techniques and methodology in rearing, preparation and studying insects. Two lec and one demonstration-discussion per wk. Prereq: 211. (BARR)

322 Economic Entomology (3 cr) S (104)

Importance of insects associated with agriculture; identification, biology and control. Two lec and one 2-hr lab per wk. Prereq: 211. (BISHOP)

342 Insect Identification (4 cr) S (120)

Survey of the major families; collecting and preservation techniques. Two lec and two 2-hr labs per wk; two 1-day field trips. Prereq: 211. (BRUSVEN)

ID372 Aquatic Entomology (3 cr) S (128)

Alt/yrs 1970-71. Identification and biology of insects associated with aquatic and subaquatic environments. One lec and two 2-hr labs per wk; two 1-day field trips. Prereq: perm. (BRUSVEN)

400 Directed Studies (1-3 cr, max 4) F & S (107-108)

Prereq: perm.

425 Forest Entomology (3 cr) F (109)

Also offered as For 469. 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. (SCHENK)

- 442 Immature Insects (3 cr) S (124)**
Alt/yr 1970-71. Structure, behavior and identification of immature insects. One lec and two 2-hr labs per wk. Prereq: 211. (BRUSVEN)
- 461 Insect Ecology (2 cr) F (122)**
Alt/yr 1970-71. Factors affecting the distribution, abundance and behavior of insects; population dynamics. Prereq: 211 (BRUSVEN)
- 484 Insect Anatomy and Physiology (4 cr) S (126)**
Alt/yr 1969-70. Organ systems of insects and their functions. Three lec and one 3-hr lab per wk. Prereq: 211. (GITINS)
- ID498 Insect Morphogenesis (3 cr) S (198)**
Alt/yr 1970-71. Ontogenetic development; embryogenesis, metamorphosis, morphology and phylogeny of insects. Prereq: adv standing in entomology. (GITINS)
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 510 Seminar (1 cr, max 6) F & S (211-212)**
- ID513 Entomological Research Methods (3 cr) F (213)**
Procedures and techniques of studying insects; measuring physical environmental factors. (SMITH)
- 517 Entomological Literature (1 cr) F (217)**
Assembly and use of entomological literature. (BARR)
- 521 Principles of Insect Control (3 cr) F (221)**
Principles, theory and methodology of regulating populations of detrimental insects. (BISHOP)
- 525 Advanced Forest Entomology (3 cr) F (215)**
Also offered as For 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: 425 or perm. (SCHENK)
- 538 Pesticide Toxicology (3 cr) S (280)**
Also offered as PISc 538. Modes of action of pesticide chemicals, effects on living organisms. Prereq: perm. (HELTON, SMITH)
- 544 Systematic Entomology (3 cr) S (220)**
History and principles of insect classification; taxonomic procedure and rules of nomenclature. (BARR)
- 561 Insect Bionomics (2 cr) F (223)**
Biology and behavior of insects. (BARR)
- WS571 Insect-Plant Relations (3 cr) S (227)**
Alt/yr 1970-71. WSU 541. Mechanisms of plant resistance; factors affecting expression of permanence of resistance; analysis of insect-plant associations. Prereq: 242, Biol 203. (SOO HOO)
- 582 Insect Physiology (4 cr) S (218)**
Interrelations of structure and metabolic functions of insect organ systems. Two lec and two 3-hr labs per wk. Prereq: 484 and course in organic chemistry. (SMITH)
- 600 Doctoral Research and Dissertation (cr arr) F & S (300)**

FOOD SCIENCE (FS)

Professor Anderson; Associate Professors Barnhart, Montoure, Muneta, Orme; Instructor Huber.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 101 Introduction to Food Science (3 cr) S (1)**
Food science and its relation to agriculture; opportunities in the various fields of the food industry; trends in procurement, management, processing, distributing, and utilization of food. (BARNHART)
- 201 Physical Principles of Food Processing (3 cr) F (100)**
Alt-yrs 1969-70. Processing by heat, freezing, dehydration, radiation, and other methods. (BARNHART)
- 204 Chemical Principles of Food Processing (3 cr) A (105)**
Alt-yrs 1970-71. Texture, color, flavor and nutritive quality during food harvesting, processing and distribution. (MUNETTA)
- 259 Food Product Analysis for Quality Control (4 cr) F (59)**
Methods of food examination basic to detection of adulteration, food grading, and quality control; procedures for analysis of food products. Two lec and two 2-hr labs per wk. (MONTURE)
- 294 Food Processing I (4 cr) S (94)**
Science, engineering and bacteriological influences involved in purchasing, processing and distribution of market milk and other perishable foods. Two lec and one 4-hr lab per wk. Prereq: 259 or perm. (BARNHART)
- 312 Food Plant Equipment and Buildings (3 cr) S**
Alt-yrs 1970-71. Principles of construction, operation and maintenance of food processing equipment; process control; steam, water, electrical, refrigeration, and air production and control; building construction, design, materials and methods. Two lec and one 2-hr lab per wk. (BARNHART)
- 313 Food Plant Sanitation and Inspection (3 cr) F (113)**
Alt-yrs 1969-70. Hard surface detergency, detergent classification and formulation; water conditioning and treatment; waste disposal; inspection as established by federal and state agencies. Two lec and one 3-hr lab per wk. Prereq: 294 or perm. (BARNHART)
- 329 Proseminar (1 cr) F**
Food science problems and review of literature. (MONTURE)
- 334 Meat Technology (3 cr) S (134)**
See Anl 334 for description.
- 351 Meats (1 cr) F (AS 56)**
See Anl 351 for description.
- 400 Undergraduate Research (1-2 cr, max 4) F & S**
- 416 Food Plant Management (3 cr) S (115)**
Alt-yrs 1970-71. Organization, operation and management of processing plants; local, state and federal regulations pertaining to processing, sale and distribution of food products. Prereq: perm. (BARNHART)

422 Food Chemistry and Analysis (3 cr) S (128)

See AgBiC 422 for description.

438 Fruit and Vegetable Processing (4 cr) S

Processing of fruits, vegetables, pickles, jellies, and jams; unit operations and processes of canning, freezing, and dehydration. Three lec and one 3-hr lab per wk. Prereq: perm.

441 Food Processing II (4 cr) F (140)

Alt/yrs 1969-70. Theory and practice of processing food products into ice cream and other frozen desserts; chemical and physical changes during preparation, freezing, refrigerated storage and freeze drying; cultured food products and cottage cheese. Two lec and one 4-hr lab per wk. Prereq: 294 or perm. (BARNHART)

442 Food Processing III (4 cr) S (141)

Alt/yrs 1969-70. Techniques involved in production of manufactured food products through coagulation and precipitation phenomena as well as controlled fermentation; concentration by dehydration; cheese varieties and butter production. Two lec and one 4-hr lab per wk. Prereq: 294 or perm. (MONTURE)

476 Advanced Food Products Analysis (2 cr) S (176)

Alt/yrs 1969-70. Modern sophisticated instruments and lab techniques used in research and in technical control of dairy and food products. Two 2-hr labs per wk. Prereq: 259 or perm. (MONTURE)

500 Master's Research and Thesis (cr arr) F & S

501-502 Advanced Food Science (2 cr) F-S

Application of microbiological, physical and physio-chemical principles to the processing of food products; problems of bacterial destruction and growth, viscosity, foam formation, freezing, crystallization, and protein and fat stability. Prereq: 12 cr in chemistry, 7 cr in bacteriology, or perm. (MONTURE)

522 Pesticide Residues and Chemical Additives in Food (3 cr) S (120)

Sources and nature. (MONTURE)



FOREIGN LANGUAGES (FL)

Carlton L. Iiams (Head), Professors Lashbrook (Latin and Classics), Reed (German); Associate Professors Iiams (German), Sita (Spanish and Linguistics); Assistant Professors Gonzales (Spanish), Klaren (Spanish), Stevenson (French), Sullivan (German and Spanish), von Dassow (Russian and German); Instructors Bazan (Spanish), Gardner (French), Jensen (Spanish), Vogt (German).

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

PLACEMENT: Students who plan to continue a language begun elsewhere must take a placement examination during registration week. Consult the head of the Department of Foreign Languages for specific information. (Full credit in semester hours and grade points is earned in courses students complete successfully, regardless of courses taken in high school.)

Prerequisite for upper-division language courses is the appropriate intermediate course, or equivalent.

COURSES OFFERED IN ENGLISH (no prerequisites)

163 Survey of Classical Origins (3 cr) F

Literature, history, philosophy, archaeology, and art of Greece and Rome; independent investigation, varied readings, critical discussions, and writing.

243-244 English Word Origins (2 cr) F-S (Gr 53-54)

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.

323 Modern German Literature in Translation (3 cr) F or S (Ger 106)

Major 20th-century authors; knowledge of German is not required; does not count toward a major in German.

373-374 Russian Literature in Translation (3 cr) F-S (Russ 121-122)

Main currents of Russian literature; knowledge of Russian is not required.

FRENCH

101-102 Elementary French (4 cr) F & S (Fr 1-2)

Pronunciation, vocabulary, reading, spoken French, functional grammar.

104 Elementary French Reviewed (4 cr) S

Review of subject matter covered in 101-102; not open for credit to students who have taken 101 or equiv in college. Prereq: 2 yrs of French in high school.

105-106 French for Graduate Students (0 cr) F-S (Fr 5-6)

Preparation for the doctoral reading examination. Two 1-hr rec per wk.

201-202 Intermediate French (4 cr) F & S (Fr 13-14)

Reading, grammar review, speaking and writing. Prereq: 102.

301-302 Advanced French Grammar and Composition (3 cr) F-S (Fr 101-102)

Recommended for prospective teachers of French.

303-304 French Culture and Institutions (3 cr) F-S (Fr 111-112)

305-306 Survey of French Literature (3 cr) F-S (Fr 121-122)

Middle Ages to the present.

401-402 Nineteenth-Century French Literature (3 cr) F-S (Fr 135-136)

403-404 Seventeenth-Century French Literature (3 cr) F-S (Fr 141-142)

405-406 Eighteenth-Century French Literature (3 cr) F-S (Fr 143-144)

407-408 Contemporary French Literature (3 cr) F-S (Fr 145-146)

409-410 French Phonetics (1 cr) F-S (Fr 171-172)

Phonetic description and phonemic analysis; stress, its nature and place; intonation patterns in conversation; reading of prose and poetry.

411-412 French Composition and Conversation (2 cr) F-S (Fr 181-182)

413-414 French for Teachers (2 cr) F-S (Fr 191-192)

Language and culture; pronunciation and diction.

415 French Proseminar (1-3 cr, max 6) F & S (Fr 198-199)

- (a) Medieval through 16th Century
- (b) 17th Century
- (c) 18th Century
- (d) 19th Century
- (e) 20th Century

GERMAN

121-122 Elementary German (4 cr) F-S (Ger 1-2)

Pronunciation, vocabulary, reading, spoken German, functional grammar.

125-126 German for Graduate Students (0 cr) F-S (Ger 5-6)

Preparation for the doctoral reading examination. Two 1-hr rec per wk.

221-222 Intermediate German (4 cr) F-S (Ger 13-14)

Reading, grammar review, speaking and writing. Prereq: 122.

223-224 Intermediate German: Scientific (4 cr) F-S (Ger 51-52)

Readings adapted to the needs of students in scientific curricula. Prereq: 122.

321-322 Advanced German Grammar and Composition (3 cr) F-S (Ger 101-102)

Recommended for prospective teachers of German.

325-326 German Culture and Institutions (3 cr) F-S (Ger 111-112)

327-328 Survey of German Literature (3 cr) F-S (Ger 121-122)

To the close of the 19th century.

421-422 Nineteenth-Century German Literature (3 cr) F-S (Ger 135-136)

423-424 Modern German Literature (3 cr) F-S (Ger 138-139)

425-426 Eighteenth-Century German Literature (3 cr) F-S (Ger 141-142)

427-428 Classical Period in German Literature (3 cr) F-S (Ger 143-144)

429-430 German Phonetics (1 cr) F-S (Ger 171-172)

Phonetic description and phonemic analysis; stress, its nature and place; intonation patterns in conversation; reading of prose and poetry.

431-432 German Composition and Conversation (2 cr) F-S (Ger 181-182)

433-434 German for Teachers (2 cr) F-S (Ger 191-192)

Language and culture; pronunciation and diction.

435 German Proseminar (1-3 cr, max 6) F & S (Ger 198-199)

- (a) Medieval through 16th Century
- (b) 17th Century
- (c) 18th Century
- (d) 19th Century
- (e) 20th Century

GREEK

141-142 Elementary Greek (4 cr) F-S (Gr 1-2)

Pronunciation, vocabulary, reading, functional grammar.

241-242 Intermediate Greek (4 cr) F-S (Gr 13-14)

Reading, grammar review, writing. Prereq: 142.

ITALIAN

151-152 Elementary Italian (4 cr) F-S (Ital 1-2)

Pronunciation, vocabulary, reading, spoken Italian, functional grammar.

251-252 Intermediate Italian (4 cr) F-S (Ital 13-14)

Reading, grammar review, speaking and writing. Prereq: 152.

LATIN

161-162 Elementary Latin (4 cr) F-S (Lat 1-2)

Pronunciation, vocabulary, reading, spoken Latin, functional grammar.

261-262 Intermediate Latin (4 cr) F-S (Lat 13-14)

Reading, grammar review, speaking and writing. Prereq: 162.

361-362 Advanced Latin Grammar and Composition (3 cr) F-S (Lat 101-102)

Recommended for prospective teachers of Latin.

363-364 Latin Culture and Institutions (3 cr) F-S (Lat 111-112)

365-366 Survey of Latin Literature (3 cr) F-S (Lat 121-122)

To the close of the third century.

461-462 Latin Literature of the Augustan Age (3 cr) F-S (Lat 134-135)

463-464 Latin Literature of the Republic (3 cr) F-S (Lat 141-142)

465-466 Latin Literature of the Silver Age (3 cr) F-S (Lat 143-144)

467-468 Latin for Teachers (2 cr) F-S (Lat 191-192)

Language and culture; pronunciation and diction.

469 Latin Proseminar (1-3 cr, max 6) F & S (Lat 198-199)

- (a) The Republic
- (b) Augustan Age
- (c) Silver Age

RUSSIAN

171-172 Elementary Russian (4 cr) F-S (Russ 1-2)

Pronunciation, vocabulary, reading, spoken Russian, functional grammar.

271-272 Intermediate Russian (4 cr) F-S (Russ 13-14)

Reading, grammar review, speaking and writing. Prereq: 171.

371-372 Advanced Russian Grammar and Composition (3 cr) F-S (Russ 101-102)

Recommended for prospective teachers of Russian.

SPANISH

181-182 Elementary Spanish (4 cr) F & S (Span 1-2)

Pronunciation, vocabulary, reading, spoken Spanish, functional grammar.

184 Elementary Spanish Reviewed (4 cr) S

Review of subject matter covered in 181-182; not open for credit to students who have taken 181 or equiv in college. Prereq: 2 yrs of Spanish in high school.

281-282 Intermediate Spanish (4 cr) F-S (Span 13-14)

Reading, grammar review, speaking and writing. Prereq: 182.

381-382 Advanced Spanish Grammar and Composition (3 cr) F-S (Span 101-102)

Recommended for prospective teachers of Spanish.

383-384 Spanish Culture and Institutions (3 cr) F-S (Span 111-112)

Includes topics in Spanish-American civilization.

385-386 Survey of Spanish Literature (3 cr) F-S (Span 121-122)

387-388 Survey of Spanish-American Literature (3 cr) F-S (Span 151-152)

481-482 Nineteenth-Century Spanish Literature (3 cr) F-S (Span 135-136)

483-484 Golden Age in Spanish Literature (3 cr) F-S (Span 141-142)

Sixteenth and seventeenth centuries.

485-486 Contemporary Spanish Literature (3 cr) F-S (Span 147-148)

487-488 Contemporary Spanish-American Literature (3 cr) F-S (Span 155-156)

489-490 Spanish Phonetics (1 cr) F-S (Span 171-172)

Phonetic description and phonemic analysis; stress, its nature and place; intonation patterns in conversation; reading of prose and poetry.

491-492 Spanish Composition and Conversation (2 cr) F-S (Span 181-182)

493-494 Spanish for Teachers (2 cr) F-S (Span 191-192)

Language and culture; pronunciation and diction.

495 Spanish Proseminar (1-3 cr, max 6) F & S (Span 198-199)

- | | |
|-----------------------------------|------------------|
| (a) Medieval through 16th Century | (d) 19th Century |
| (b) 17th Century | (e) 20th Century |
| (c) 18th Century | |

FORESTRY (For)

Ernest Wohletz (Dean, Forestry, Wildlife and Range Sciences). Professors Chapman, Deters, Howe, Hungerford, Loewenstein, MacPhee, Partridge, Seale, Sharp, Tisdale, Wang, Wohletz; Associate Professors Alden, Belt, Bjornn, Hironaka, Hornocker, Johnson, Knight, Pitkin, Schenk; Assistant Professors Bizeau, Hofstrand; Instructor Morrison.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 101 Forestry Orientation (1 cr) F (1)**
Introduction to forestry and related wildland management professions; orientation to the University and College. (WOHLETZ)
- 216 Tree Identification (2 cr) S (16)**
Identification, distribution and economic use of important trees of western U. S.; emphasis on trees of Idaho. One lec and one 2-hr lab per wk. Open to non-forestry students only. (JOHNSON)
- 250 Introduction to Wildland Management (2 cr) S (50)**
Methods of inquiry into and logical exposition of topics in forestry and related wildland disciplines.
- 300 Forest Resource Measurements (1-4 cr) Summer Camp (100)**
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 classes. (SEALE)
- 301 Wildland Ecology (4 cr) Summer Camp (101)**
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 classes. Prereq: systematic botany and general ecology. (JOHNSON)
- 303 Forest Resources Conservation (2 cr) F (103)**
Resources of forest and range lands; wood, range plants, wildlife, fish, water, and recreation; principles of management which lead to their conservation. Open to non-forestry students only.
- 305 Farm Forestry (2 cr) F (105)**
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.
- 307 Biometry (3 cr) F (107)**
See Ag 321 for description.
- 317 Elements of Fishery Management (2 cr) F (117)**
Fishery management and life histories and habitat requirements of important game species. Two days of field trips. (MacPHEE)
- 320 Dendrology (3 cr) S (120)**
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. (JOHNSON)

- 321 Silvics (2 cr) F (121)**
Ecological basis for the management of vegetation, especially forests. Prereq: 301 and general chemistry. (LOEWENSTEIN)
- 327 Elementary Forest Tree Improvement (1 cr) F or S (127)**
Also offered as Genet 307. Basic genetic principles and practices of forest tree improvement. Two 1/2-day field trips. Prereq: general botany. (WANG)
- 331 Wood Technology (3 cr) F (131)**
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. Prereq: general botany. (HOWE, HOFSTRAND)
- 341 Elements of Wildlife Management (2 cr) F (141)**
Managing wild animal populations within the framework of multiple use of land. Two 1-day field trips. (HUNGERFORD)
- 351 Elements of Range Management (2 cr) F (151)**
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. (TISDALE)
- 367 Fire Control (2 cr) F (167)**
Objectives and policy; effects of fire on the ecosystem; fire behavior; use of fire as a wildland management tool. One 2-day field trip. (JOHNSON)
- 370 Principles of Forest Management (2 cr) S (170)**
Forest regions and industries; silvicultural principles and practices employed in timber production and utilization; interrelations between wood production and other uses of forest land.
- WS406 Radiation Ecology (2 cr) S**
Alt/yrs 1970-71. WSU BioSc 440. Fate and effect of radio nuclides in the natural environment. (SCHULTZ)
- 408 Forest Soils (2 cr) S (108)**
Also offered as Soils 408. Properties of wildland soils; forest humus; soil-site relationships; improvement of unproductive forest soils; soils and reforestation; management of nursery soils. Prereq: general soils. (LOEWENSTEIN)
- 411 Ichthyology (3 cr) F (111)**
See Zool 481 for description.
- 416 Limnology (3 cr) S (116)**
Also offered as Zool 436. Interrelationships of the physical, chemical, and biological features of lakes and streams. Two lec and one 3-hr lab per wk; occasional field-labs and two days of field trips. Prereq: general chemistry and general zoology. (MacPHEE)
- 418 Fishery Management Techniques (3 cr) S (118)**
Methods and techniques employed in fishery management and practice in their use. Two lec and one 3-hr lab per wk; occasional field-labs and two days of field trips. Prereq: 307, 317. (BJORNN)
- 422 Forest Planting (2 cr) S (122)**
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: 321. (PITKIN)

- 424 Silviculture (3 cr) S (124)**
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: 321. (DETERS)
- 425 Regional Silviculture (2 cr) F (125)**
Forest regions of the U. S. and the practical methods for successful handling of the important forest types in each region. Prereq: 424. (DETERS)
- 434 Logging and Wood Industries (3 cr) S (134)**
Logging equipment and methods; manufacture of major wood products; modern techniques in the planning of operations. Five days of field trips. (HOWE, HOFSTRAND)
- 436 Biological Properties of Wood (3 cr) S**
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. (HOWE, HOFSTRAND)
- 437 Physical Properties of Wood (3 cr) F (137)**
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. (HOFSTRAND)
- 438 Chemical Properties of Wood (3 cr) S (138)**
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. Prereq: organic chemistry. (HOWE)
- 442 Wildlife Management (3 cr) S (142)**
Life histories, environments and management principles of wildlife populations, especially upland game, waterfowl, and fur animals. Two lec and one lab per wk. Prereq: 307, 341. (HUNGERFORD)
- 443 Wildlife Management Techniques (2 cr) F (143)**
Techniques of manipulating game populations and habitats. One lec and one 3-hr lab per wk. Prereq: 442. (KNIGHT)
- 444 Big Game Management (3 cr) S (144)**
Big game species and their populations as related to the major objectives of wildland resource management; objective balance of the components of game habitat with desirable population levels. Two lec and one 3-hr lab per wk. Prereq: 351, 442. (KNIGHT)
- 446 Big Game Management Trip (1 cr) S**
One or two field trips of 9 days maximum total duration. Coreq: 444 and perm. (KNIGHT)
- 452 Range Communities (4 cr) S (152)**
Vegetational composition, physical characteristics, grazing reactions, and management of plant communities in the major range regions. Two lec and two 2-hr labs per wk; two days of field trips. Prereq: general botany; systematic botany (may be concurrent). (SHARP)
- 453 Range Methods and Techniques (3 cr) F (153)**
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. (SHARP)

- 454 Range Improvement and Management Planning (3 cr) S (154)**
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-discussion per wk; one 1-wk field trip. Prereq: 351, 453. (TISDALE)
- 462 Watershed Management (3 cr) F (162)**
The hydrologic cycle as it is influenced by climate, vegetation and land use; forest and range management practices placed in the context of water-resource management at local and regional levels; management practices which influence quality, quantity, and regimen of yield from non-agricultural lands. Lab occasionally substituted for lec. Two days of field trips. Prereq: general soils, sr standing in the College or perm. (BELT)
- 464 Forest Pathology (3 cr) S (164)**
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 two labs per wk; one 1-day field trip. Prereq: 301, 474. (PARTRIDGE)
- 469 Forest Entomology (3 cr) F (169)**
See Ent 425 for description.
- 474 Mensuration (3 cr) S (174)**
Theory of log, tree and stand measurement; construction and use of volume tables; construction and application of yield tables; growth studies. Two lec and one 2-hr lab per wk. Prereq: 300, 307. (SEALE)
- 475 Forest Finance (2 cr) F (175)**
Financial aspects of management of American forests; appraisal of land, growing stock, stumpage and damages; application of simple and compound interest, capitalization and discount formulae in forest business. (DETERS)
- 476 Forest Regulation (3 cr) S (176)**
Regulation of American forests for continuous timber production. One 2-day field trip. Prereq: 424, 474. (DETERS)
- 482 Economics of Forest Enterprise (2 cr) S (182)**
Economics of production of forest goods and services—agents of production and their combination; planning the use of forest resources by the individual firm; principles and methods of economic analysis most useful in making decisions and in understanding economic activity. Prereq: general economics. (SEALE)
- 483 Economics of Conservation (2 cr) F (183)**
Resources and conservation; place of economics in resource analysis and conservation programs; analysis of major economic problems of forestry in the context of the general economy; goals and responsibilities in public planning of resource use. Prereq: general economics. (SEALE)
- 484 Forest Policy and Administration (3 cr) S (184)**
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. (ALDEN, WOHLETZ)
- 487 Forest Recreation (3 cr) F (187)**
Objectives and problems in the integration of recreation into multiple-use land management. Three days of field trips. (ALDEN)

491-492 Directed Studies (1-3 cr) F-S (191-192)

- | | |
|-------------------------|---------------------------------|
| (a) Forest Management | (d) Fishery Management |
| (b) Range Management | (e) Wood Utilization Technology |
| (c) Wildlife Management | (f) Watershed Management |

For the individual student; conferences, library, field or lab work. Prereq: sr standing in the College, GPA 2.5, and perm.

493 Legal Aspects of Land Management (2 cr) F (193)

Legal problems facing administrative officers of land management agencies, basic laws under which they must operate, and enforcement of these laws. Prereq: sr standing. (HUNGERFORD)

494 Models for Resource Decisions (2 cr) S (194)

Use of mathematical models of resource systems to explore managerial strategy; problem analysis, systems concepts and optimization of resource allocation. One lec and one 2-hr lab per wk. Prereq: sr standing in the College or perm.

497-498 Land Management Seminar (1 cr) F-S (197-198)

Assigned studies in wildland management. Prereq: sr standing in the College.

500 Master's Research and Thesis (cr arr) F & S (300)

501-502 Seminar (1 cr) F-S (201-202)

Major philosophical, management, and research problems of wildlands; presentation of individual studies on assigned topics.

504 Fundamentals of Research (2 cr) F (204)

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. (PARTRIDGE)

WS507 Statistical Ecology (3 cr) F

Alt/yrs 1969-70. WSU BioSc 530. Collection and interpretation of ecological data according to biometrical procedures. (SCHULTZ)

ID510 Advanced Fishery Management (3 cr) S (210)

Alt/yrs 1969-70. 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. (CHAPMAN)

ID512 Fishery Ecology (2-3 cr) F or S (212)

Racial discrimination, migration, and spawning activities of salmonids; environmental stress with reference to physiology, competition, predation, and pollution. Two lec and one lab per wk; one 5-day field trip. (MacPHEE)

514 Fish Population Dynamics (2 cr) S (214)

Alt/yrs 1970-71. 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. (CHAPMAN, BJORN)

521 Advanced Forest Soils (3 cr) F (221)

Also offered as Soils 507. 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. (LOEWENSTEIN)

523 Forest Community Classification (2 cr) F (223)

Application of the concepts of ecological classification of western forest communities; qualitative field application. Lec-discussion periods and field labs. Three

days of field trips. Prereq: plant ecology or silvics. Enrollment limited to 6 students. (JOHNSON)

525 Advanced Silviculture (2 cr) F or S (225)

Silvicultural systems and intermediate cuttings. Two days of field trips. Prereq: 424, 425. (DETERS)

527 Forest Genetics (3 cr) F (227)

Also offered 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. (WANG)

528 Forest Tree Improvement (3 cr) S (226)

Also offered as Genet 528. Practical problems and techniques related to genetic improvement of forest trees. Two days of field trips. Prereq: 424 and general genetics. (WANG)

531 Advanced Wood Technology (2-3 cr) F (231)

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. (HOWE)

536 Wood Chemistry (3-4 cr) S (236)

Chemistry of woody tissues, including lignin, cellulose, hemi-celluloses, and other polysaccharides. lab work in the analysis and the chemistry of wood. Prereq: 438. (HOWE)

541 Advanced Wildlife Management (2 cr) F or S (241)

Research methods, ecology and life history studies of native wildlife species; analysis of field data and current wildlife management procedures; students may elect to specialize in upland game or big game but normally only one of these fields will be offered in any one semester. Lec-discussion periods, labs and field labs. One to three 1-day field trips. Prereq: 307, 443, 504. (KNIGHT)

542 Wetland Habitat Management (2 cr) F or S (242)

Life history, ecology and management of the species using wetland habitats, and current procedures for managing such lands; students may elect to specialize in waterfowl or furbearer management but normally only one of these fields will be offered in any one semester. Lec-discussion periods, labs and field labs. One to three 1-day field trips. Prereq: courses in wildlife management and wildlife techniques and a knowledge of aquatic plants. (HUNGERFORD)

543 Advanced Wildlife Techniques (3 cr) S (243)

Alt.yrs 1969-70. Laboratory and field techniques; population studies and application of statistical analysis to animal population problems. Field trips may be required on an individual basis. Prereq: 307, 443. (HUNGERFORD, KNIGHT)

547 Wildlife Ecology (3 cr) F (247)

Alt.yrs 1970-71. Reciprocal relations of wildlife populations and their environment with special reference to game birds, game animals and furbearers. Weekly field labs. Two field trips (one 1-day and one 2-day). Prereq: plant ecology, animal ecology and perm. (HUNGERFORD)

ID551 Range Ecology: Concepts (3 cr) F (251)

Alt.yrs 1969-70. 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. (TISDALE)

- 552 Range Ecology: Quantitative (2 cr) S (252)**
 Alt/yr 1969-70. Quantitative treatment of ecological data to show species interaction, soil-vegetation relations, and classification and characterization of plant communities. Prereq: 307, 551. (HIRONAKA)
- 553 Range Forage Productivity and Management (3 cr) S (253)**
 Alt/yr 1970-71. 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. (SHARP)
- 555 Range Literature (3 cr) F (255)**
 Alt/yr 1970-71. Survey and analysis of the literature in range management and closely related fields. (TISDALE, SHARP)
- ID563-564 Advanced Forest Pathology (2-4 cr) F or S (263-264)**
 Field methods, laboratory 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. (PARTRIDGE)
- 565 Biometeorology (2 cr) F (265)**
 Alt/yr 1969-70. 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. One 2-day field trip; occasional labs. Prereq: one year physics (calculus desirable), or perm. (BELT)
- 566 Activities of Tree-Inhabiting Organisms (2 cr) F (266)**
 Alt/yr 1970-71. Environmental and biochemical actions and inter-actions of important bacteria, fungi, higher plants, and animals (excluding insects) associated with trees. Prereq: 563 or 564, and one year of organic chemistry. (PARTRIDGE)
- 569 Advanced Forest Entomology (3 cr) F (269)**
 See Ent 525 for description.
- 574 Advanced Forest Mensuration (2 cr) F or S (274)**
 Mathematical and statistical principles and techniques in determination of volume and growth of trees and stands; applications of sampling theory and correlation analysis. Prereq: courses in mensuration equivalent to 474 and in statistical methods, preferably beyond the elementary course. (SEALE)
- 575 Advanced Forest Management (2 cr) F or S (275)**
 Aspects of forest regulation; recent developments in applied forest management and important contributions in forest management. (DETERS)
- 581-582 Advanced Forest Economics (2 cr) F or S (281-282)**
 Economic principles, legislation and policies, affecting forestry, particularly those bearing on the character and intensity of land use. (SEALE)
- 587 Advanced Forest Recreation (2 cr) F or S (287)**
 Problems, practices and economics of the use of lands and waters for recreation. Two days of field trips. Prereq: course in forest recreation. (ALDEN)
- 589 Water Resources Seminar (1 cr) F or S (289)**
 See Inter 589 for description.

591 Special Problems (1-3 cr, max 6) F & S (291-292)

- (a) Forestry Science
- (b) Range Science
- (c) Wildlife Science

- (d) Fishery Science
- (e) Wood Science
- (f) Watershed Science

Individual study, library work or studies in the field or laboratory Prereq: perm.

600 Doctoral Research and Dissertation (cr arr) F & S (300)

FRENCH—See Foreign Languages

GENERAL ENGINEERING—See Engineering (General)

GENERAL SOCIAL SCIENCE—See Social Science



GENETICS (Genet)

Doyle E. Anderegg (Coordinator). Professors Anderegg, Cherrington, Christian, Wang; Associate Professors Forbes, Slinkard, Tylutki.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 106 Human Heredity (2 cr) F**
See Biol 150 for description.
- 307 Elementary Forest Tree Improvement (1 cr) F or S**
See For 327 for description. Prereq: Biol 201.
- 314 General Genetics (3 cr) F & S**
See Biol 351 and PISc 314 for description. Prereq: Biol 201.
- 315 General Genetics Laboratory (1 cr) S**
See Biol 352 for description. Prereq or coreq: 314.
- 410 Independent Study (1-3 cr) F & S**
Prereq: perm of dept.
- 421 Population Genetics (3 cr) F**
See Anl 421 for description. Prereq: 314.
- 422 Animal Breeding (3 cr) S**
See Anl 422 for description. Prereq: 314.
- 446 Plant Breeding (3 cr) S**
Alt/yr 1969-70. See PISc 446 for description. Prereq: 314.
- 499 Genetics Seminar (1 cr, max 2) F & S**
Prereq: 314.
- 510 Independent Study (1-3 cr) F & S**
Prereq: perm of dept.
- 511 Genetics of Fungi (3 cr) S**
Alt/yr 1970-71. See Bot 558 for description. Prereq: 314 and course in mycol-ogy or perm.
- 512 Microbial Genetics (2-4 cr) S**
See Bact 512 for description. Prereq: 314 recommended.
- 519 Genetics Literature (2 cr) S**
See PISc 519 for description. Prereq: 314.
- 522 Statistical Genetics (3 cr) S**
See Anl 522 for description. Prereq: perm.
- 527 Forest Genetics (3 cr) F**
See For 527 for description. Prereq: 314, For 424.
- 528 Forest Tree Improvement (3 cr) S**
See For 528 for description. Prereq: 314, For 424.
- 534 Cytogenetics (3 cr) S**
Alt/yr 1970-71. See PISc 534 for description. Prereq: 314 and cytology.

537 Physiological and Molecular Genetics (3 cr) F or S

See Biol 555 for description. Prereq: 314.

GEOGRAPHY (Geog)

George A. Williams (Head, Geology and Geography). Professors Caldwell (Chairman), Hall; Associate Professor Day; Assistant Professor Fowler.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

103 Physical Geography (4 cr) F & S (3)

Earth sciences; weather, climate, landforms, water resources, ocean and ocean basins, native plants and animals, soils; data and map analysis. Three lec and one 2-hr lab per wk. (DAY, FOWLER)

112 Economic Geography (3 cr) F & S (12)

Reciprocal relationships between mankind and its earth environment, resource distribution, changing pattern of commodity movement and industrialization; effect upon national and international developments. (CALDWELL, FOWLER)

251 Introductory Cartography (3 cr) F (51)

Visual presentation, map projections, diverse lettering and sketching techniques, layout, compilation and design problems, three dimensional models, map and photo interpretation. One lec and two 3-hr labs per wk. (CALDWELL)

252 Cultural Geography (3 cr) S (52)

Population growth, distribution, movement; origin and dispersal of culture traits; landscape settlement patterns; man's impact on the land and the environment's impact on man.

254 World Regional Geography (2 cr) S (54)

Countries, regions and peoples of the world; interrelationships between man and his physical and cultural environments.

340 Anglo America (3 cr) F (140)

Alt/yrs 1969-70. Geographic regions and occupancy patterns; climate, topography, industries and natural resources as they underlie modern problems. Two 1-day field trips. Prereq: jr standing. (DAY)

343 Geography of Idaho and the Pacific Northwest (3 cr) S (143)

Alt/yrs. Human and physical resources; changes; case studies of specific areas, problems of industries. One 2-day field trip. (DAY)

401 Weather and Climate (3 cr) S (101)

Alt/yrs. Weather, air masses, storms and associated phenomena, meteorological instruments, weather maps, forecasting; world's weather and climate types with emphasis on their application to man. One 1-day field trip. Prereq: 103 or Geol 109, or perm. (DAY)

416 Geography of Europe (3 cr) F & S (116)

Europe, exclusive of USSR, by geographic regions and occupancy patterns; climate, topography, human and economic resources which underlie contemporary problems. Prereq: jr standing.

- 424 Intermediate Economic Geography (3 cr) S (124)**
Alt/yr 1969-70. Industrial location; distribution of manufacturing; transportation and traffic flow; case studies. (DAY)
- 437 Conservation of Natural Resources (3 cr) F (137)**
Use of mineral, soil, vegetation and water resources of the U S; physical, social and economic problems involved in integrating resources development; population growth and resources on the international scale. Two 1-day field trips. (FOWLER)
- 445 Geography of Latin America (3 cr) F & S (145)**
Geographic factors, physical and cultural, basic to an understanding of the area; economic and social geography of individual countries.
- 452 Advanced Cartography and Remote Sensing (2 cr) S (152)**
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. (CALDWELL)
- 455 Geography of Asia (3 cr) F (155)**
Alt yrs 1970-71. Political, physical, cultural and economic analysis and interaction; demographic problems; Asia in world affairs. Prereq: jr standing. (CALDWELL)
- 470 Urban Geography (3 cr) S (170)**
Alt yrs 1969-70. Origin, development and distribution of cities; urban patterns, forms and functions; systems of urban land classification; forces affecting urban land use; geographic aspects of city planning. One 1-day field trip. (FOWLER)
- 480 Political Geography (3 cr) F (180)**
Geographic nature of states; organization, power, boundaries, ethnic units, internal and external relations as influenced by, and adjusted to, geographic conditions; geopolitics and contemporary problems. Prereq: jr standing. (CALDWELL)
- 485 Special Topics (1-6 cr, max 12) F & S (185-186)**
- | | |
|----------------------------------|--------------------------------------|
| (a) Physical Geography | (i) Rural and Regional Planning |
| (b) Economic Geography | (j) South America |
| (c) Urban Geography and Planning | (k) Africa |
| (d) Recreational Geography | (l) Europe |
| (e) Conservation | (m) Asia |
| (f) Settlement Geography | (n) Remote Sensing |
| (g) Historical Geography | (o) Dynamic and Synoptic Meteorology |
| (h) Land Use | (p) Physical Climatology |
- Primarily for seniors. Independent or group study. Prereq: perm.
- 493-494 Seminar in Urban Studies (2 cr) F-S**
See Inter 493-494 for description.
- 495 Proseminar (1 cr, max 2) F & S (195-196)**
Prereq: sr standing.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 501 Advanced Studies in Geography (1-4 cr, max 8) F & S (201-202)**
- 504 Seminar (1 cr, max 2) F & S (204)**
- 506 Location Theory (3 cr) S (206)**
Alt yrs. Hypotheses, laws and theoretical constructs which apply to locational decision making in industry and agriculture; contributions of Weber, Palander.

Launhardt, Greenhut, Hoover, Dunn, Von Thunen, Losch. Prereq: economic geography and statistics. (FOWLER)

507 Field Geography (3 cr) F (207)

Alt/yrs. Geographic field and mapping techniques; field problem.

521 Applied Climatology (3 cr) S (221)

Alt/yrs 1970-71. Climatic classifications, microclimatic investigations, instrumentation; impact of climate on agriculture, vegetation and economic activities. (DAY)

532 Recreational Geography (3 cr) S (232)

Alt/yrs 1969-70. Dynamics of recreational uses of land and water; measurement and planning; interaction of local and regional approaches; some economic impact studies. (CALDWELL)

ID595 Geometrics (3 cr) F (241)

Alt/yrs 1970-71. Quantitative techniques and their application to spatial and geologic problems. Two lec and one 2-hr lab per wk. Prereq: perm. (FOWLER)

596 Applied Geometrics (2 cr) S (242)

Formulation of specific research project that culminates in a quantitative research document. One lec and one 2-hr lab per wk. Prereq: 595 or perm. (FOWLER)

GEOLOGY (Geol)

George A. Williams (Head, Geology and Geography). Professors Hall, Reid, Smiley, G. Williams; Associate Professors Bond, Jones, Savage, Siems, R. Williams; Instructor Ross.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

109 Physical Geology (4 cr) F & S (9)

The earth: its composition, structure and natural processes. Three lec and one 2-hr lab per wk; one 1-day field trip.

110 Historical Geology (4 cr) S (10)

Evolution of the physical earth, plants and animals; techniques used in interpretation of geologic history. Three lec and one 2-hr lab per wk; one 1-day field trip.

111 Ancient Life (4 cr) F (53)

Life in the different geologic periods; evolutionary development of organisms; lab study of fossils. Three lec and one 2-hr lab per wk. (SMILEY)

X123 Geology of Idaho and the Pacific Northwest (3 cr) X (X23)

Geologic history; development of geologic structures and present-day distribution of rocks and mineral deposits; geology of area in which the course is given.

X150 Applied Geology (3 cr) X (X50)

Prospecting, mineral property development, water well location, flood control, foundation and excavation problems; laws affecting mineral resource exploration and development. Prereq: perm.

202 Minerals and Rocks (3 cr) S

Identification and composition; physical and chemical conditions controlling origin, occurrence and association of minerals and rocks. Two lec and one 2-hr lab per wk; two 1-day and one 2-day field trips. Prereq: 109; prereq or coreq: Met 201.

- 401 Geomorphology (3 cr) S (101)**
 Classification, recognition, origin and significance of landforms; landform analysis in interpretation of geologic structure and history. Two lec and one 2-hr lab per wk; one 2-day field trip. Prereq: 109 or 110 or perm. (HALL)
- N407 Historical Geology (3 cr) SS (N107)**
 Rock and fossil record of earth's history; interpretation of geologic history from the evolutionary record. Four lec and 3 hrs of lab per wk; two 1-day field trips.
- N409 Earth Science (3 cr) SS (N109)**
 Effects of geologic processes on earth's crust; rock and fossil record of earth's history; weather, climate and the origin of landforms; relations of water resources, soils, oceans, and native plants and animals. Four lec and 3 hrs of lab per wk; two 1-day field trips.
- 412 Invertebrate Paleontology (3 cr) S (112)**
 Morphology, evolutionary trends, and classification of invertebrate fossil groups. Two lec and one 3-hr lab per wk; one 2-day field trip. Prereq: 109, 110 or 111.
- 413 Sedimentology (2 cr) F (113)**
 Environments and processes responsible for separation of clastic and non-clastic sedimentary rock materials; roles of transportation, deposition, including siltation, and lithification. One lec and one 3-hr lab per wk; one 1-day field trip. Prereq: 109. (SAVAGE)
- 414 Stratigraphy (2 cr) S (114)**
 Description, classification distribution, and correlation of layered rocks; significance of stratigraphic analysis and geologic history. One lec and one 3-hr lab per wk; one 1-day field trip. Prereq: 109-110. (SAVAGE)
- N416 Origin of Rocks and Minerals (3 cr) SS (N116)**
 Origin, identification and classification of common rocks, rock-forming minerals and ore minerals; interpretation of hand specimens in terms of origin or history emphasized over descriptive mineralogy and petrography. Four lec and 3 hrs of lab per wk; two 1-day field trips.
- 421 Structural Geology (1-3 cr) F (121)**
 Deformed rocks; mechanics of failure, recognition, description, classification and genesis of folded and fractured rocks. Two lec and one 3-hr lab per wk; one 2-day field trip. Prereq: 109, Phys 114 or 210. (HALL)
- 427 Earth Science (4 cr) SS (127)**
 Earth and its place in the solar system processes responsible for changes; course patterned on ESCP recommendations for teachers of earth science. Four lec and two 2-hr labs per wk; two 1-day field trips. Prereq: 109, Geog 103, or equiv.
- 431 Field Geology and Report Writing (6 cr) SS (131)**
 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 camp. Accident and health insurance required. Prereq: 421 or perm.
- 441 Engineering Geology (3 cr) F (141)**
 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: 109, Phys 113 or 201. (HALL)

- 445 Geological Engineering Design (3 cr) S (145)**
Application of engineering and geological principles to analysis and design in the construction industries. One 1-day field trip. Prereq: 441. (G. WILLIAMS)
- 447 Ground Water (2 cr) F (148)**
Ground water geology; introduction to ground-water hydrology. Two ½-day field trips. Prereq: 109 or perm. (ROSS)
- 453 Advanced Paleontology (3 cr) S (153)**
Fossil assemblages of different ages and environments; sequence of floras and faunas through time. One 1-day field trip. Prereq: 110 or 111, or perm.
- 458 Mineral Deposits (4 cr) F (158)**
Occurrence, classification and origin of metallic and non-metallic economic mineral deposits. Three lec and one 3-hr lab per wk; one 3-day field trip. Prereq: 202, 421. (SIEMS)
- 460 Exploration Geology (3 cr) S (160)**
Design of geologic surveys and mineral exploration programs; integration and evaluation of geologic, geochemical and geophysical exploration techniques. Prereq or coreq: 458. (SIEMS)
- 467 Optical Mineralogy (2 cr) F (167)**
Optical crystallography; petrographic microscopic identification of minerals in thin section and in crushed fragments; advanced methods, including universal stage. Two 2-hr labs per wk. Prereq: 202 or perm. (JONES)
- 468 Petrography and Petrology (3 cr) S (168)**
Origin, characteristics and classification of igneous, sedimentary and metamorphic rocks; petrographic microscope and hand specimen description and identification. Two lec and one 2-hr lab per wk; one 3-day field trip. Prereq: 467.
- WS480 Introductory Geochemistry (2 cr) F (170)**
Alt yrs 1969-70. WSU 480. Chemical mineralogy and nuclear geochemistry. Prereq: 109 and 1 yr of physical chemistry; or 202 and 1 yr of general chemistry. (ROSENBERG)
- WS481 Introductory Geochemistry (2 cr) F (171)**
Alt yrs 1970-71. WSU 481. Experimental petrology and phase equilibria in mineral systems; applications to geologic problems. Prereq: 109 and 1 yr of physical chemistry; or 202 and 1 yr of general chemistry. (ROSENBERG)
- ID485 Geochemical Exploration (3 cr) F (180)**
Rapid chemical tests on rock, soil, sediment, vegetation, or water samples to determine dispersion patterns in prospecting for mineral deposits. Two lec and one 3-hr lab per wk; two 1-day field trips. Prereq: 109, Chem 112. (SIEMS)
- 497 Proseminar (1 cr) F (197)**
Evolution of geologic thought; geology as a science and profession. Prereq: sr standing.
- 499 Research (1-3 cr, max 8) F & S (199)**
(a) Field
(b) Laboratory
(c) Report
Directed individual study. Prereq: perm of dept.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 501 Advanced Geology (1-5 cr, max 12) F & S (201-202)**
(a) General (b) Regional (c) Geomorphology

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| (d) Structural | (i) Mineral Economics | (m) History |
| (e) Mineralogy | (j) Ground Water | (n) Pleistocene |
| (f) Petrography | (k) Engineering | (o) Paleontology |
| (g) Sedimentation | (l) Research Methods | (p) Petroleum |
| (h) Mineral Deposits | | |

Individual or group study. May be repeated for credit. Prereq: perm.

510 Seminar (1 cr, max arr) F & S (297-298)

Attendance is required of all graduate students in residence. Max 2 cr toward any one degree.

WS520 Regional Stratigraphic Analysis (3 cr) F (215)

Alt/yrs 1970-71. WSU 520. Analysis, synthesis, interpretation, and presentation of stratigraphic data. One lec and two 3-hr labs per wk. Prereq: stratigraphy. (SCOTT)

525 Mineragraphy (3 cr) F (225)

Alt/yrs 1970-71. Identification of ore minerals, their texture, association and paragenesis, using systematic microscopic, microchemical and etch-testing methods; preparation of specimens, hardness testing and photomicroscopy. Three 3-hr labs per wk. (G. WILLIAMS)

545 Advanced Igneous Petrology (3 cr) F (245)

Classification and genesis of igneous rocks; emphasis on plutonic bodies. Two lec and one 2-hr lab per wk. Prereq: 467.

ID548 Paleocology (3 cr) F or S (285)

Also offered as Anthro ID537. 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. (SMILEY)

551 Stratigraphic Paleobotany (3 cr) F (251)

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. (SMILEY)

558 Advanced Mineral Deposits (3 cr) S (258)

Alt/yrs 1970-71. Origin and geochemistry of mineral deposits; syngenetic and epigenetic theories of genesis of major ore bodies. Prereq: 458 (SIEMS)

560 Theory of Mineral Exploration (3 cr) F (260)

Alt/yrs 1969-70. History and development of thought; statistical methods; application of geologic studies in search for mineral deposits. (G. WILLIAMS)

564 Volcanic Geology (3 cr) F (235)

Alt/yrs 1969-70. Volcanoes, volcanic activity, petrology of volcanic rocks, and regional problems in layered volcanic rocks. Two lec and one 2-hr lab per wk; one 3½-day and three 1-day field trips. (JONES)

ID565 Metamorphism (3 cr) F or S (240)

Metamorphic minerals, rocks, processes, and facies; poly-metamorphic rocks; recent developments in structural geometry. Two lec and one 3-hr lab per wk. Prereq: 467. (REID)

570 Tectonics (3 cr) F (270)

Alt/yrs 1970-71. Form, pattern and evolution of large-scale units of the earth's crust. (JONES)

WS573 Advanced Topics in Economic Geology (2 cr) S (216)

Alt/yrs 1969-70. WSU 573. Recent ideas, concepts and factual data relating

to the character and origin of mineral deposits. Prereq: course in origin of mineral deposits. (MILLS)

580 Advanced Gochemical Exploration (3 cr) S (280)

Alt/yr 1969-70. Theory and use of colorimetric and instrumental analytical methods in mineral exploration; primary and secondary dispersion patterns; endogenous and exogenous behavior of individual elements. Two lec and one 3-hr lab per wk. Prereq: 480. (SIEMS)

589 Water Resources Seminar (1 cr) F or S (289-290)

See Inter 589 for description.

ID590 Photogeology (3 cr) F or S (210)

Manipulation and analysis of air photos for geologic information; photogrammetry; map preparation and interpretation of stereo vertical and oblique air photos, some in color. Three 2-hr labs per wk. Prereq: 401, 421, or perm. (HALL)

592 Advanced Photogeology (3 cr) F or S

Alt/yr 1970-71. New research techniques in photogeology; use of special photographic imagery, such as color, infrared color and restricted wave length black-and-white materials. Three 2-hr labs per wk. Prereq: 590 or perm. (HALL)

600 Doctoral Research and Dissertation (cr arr) F & S (300)

GERMAN — See Foreign Languages

GREEK — See Foreign Languages

HEALTH — See Physical Education

HISTORY (Hist)

William S. Greever (Head); Professors Greever, Rolland, Winkler; Associate Professor Harris; Assistant Professors Barnes, Hackmann, Proctor.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

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 6 lower-division credits in history are required for registration in upper-division courses; exceptions by permission.

101-102 History of Civilization (3 cr) F & S (3-4)

Great civilizations; contributions to the modern world. (BARNES, HACKMANN, PROCTOR, WINKLER)

111-112 Introduction to United States History (3 cr) F & S (9-10)

Political, diplomatic, economic, social, cultural history; earliest times to the present. (BARNES, GREEVER, ROLLAND, WINKLER)

271-272 History of England (3 cr) F-S (57-58)

Political, social, economic, religious development of the British Isles; prehistoric times to the present. (HACKMANN)

- 411-412 American Colonial and Revolutionary History to 1789 (3 cr) F-S (139-140)**
 411: foundations; political, intellectual, economic, military history of the colonies to 1750. 412: Great War for empire, independence and founding of new nation, confederation period, framing and adoption of the Constitution. (ROLLAND)
- 413 United States: Early National Period (3 cr) F or S**
 Economic, political, constitutional, social problems; nationalism and beginnings of sectionalism; 1789-1828.
- 414 United States: Sectionalism and Civil War (3 cr) F or S**
 Jacksonian democracy, slavery, growing rift between sections, Civil War; 1828-1865.
- 415 United States: Emergence of Industrial America (3 cr) F or S**
 Reconstruction era, industrial development, resulting problems; 1865-1895.
- 417-418 Twentieth-Century America (3 cr) F-S**
 Evolution of 20th-century American policy, foreign and domestic; 1896 to the present. (BARNES)
- 423 Idaho and the Pacific Northwest (3 cr) F & S (123)**
 Political, economic, social development; earliest times to the present; emphasis on Idaho and Inland Empire. (BARNES, ROLLAND)
- 427-428 History of the Westward Movement (3 cr) F & S (127-128)**
 Westward migration of people, customs and institutions of the U.S.; appropriating and developing wilderness to uses of man. (BARNES, GREEVER)
- 429-430 History of American Diplomacy (3 cr) F-S (115-116)**
 429: quest for diplomatic independence and emergence of the U.S. as a world power; 1783-1921. 430: problems of the U.S. as a world power since 1921. (WINKLER)
- 431 Economic History of the United States (3 cr) F or S (136)**
 Agriculture, industry, commerce in the Thirteen Colonies and Federal Union.
- 433-434 Social and Cultural History of the United States (3 cr) F-S (133-134)**
 Growth of customs, traditions, intellectual habits, American way of life from colonial times to the present. (GREEVER)
- 435-436 History of Latin America (3 cr) F-S (111-112)**
 Spanish and Portuguese America, winning Latin American independence; rise of the republics of Mexico, Central America, Caribbean, South America; Pan-Americanism; Panama Canal; Latin American cultural, social, political evolution; international relations of Latin America and the Second World War.
- 437 History of Mexico Since 1850 (3 cr) F or S (114)**
 Economic, social, political, diplomatic spheres; relations between the U.S. and Mexico in the 20th century.
- 441-442 Greek and Roman History (3 cr) F-S (137-138)**
 Political, constitutional, social, cultural history. 441: Greece from the earliest times to Roman conquest. 442: Rome from the earliest times to the end of the Western Empire.
- 445-446 Medieval Europe (4 cr) F-S (181-182)**
 445: transition from Graeco-Roman civilization to Byzantine, Islamic, Frankish realms in early middle ages. 446: expansion and fruition of Latin Christian civilization in high middle ages; decline in later middle ages. (HARRIS)

- 447 Renaissance and Reformation (3 cr) F or S (147)**
Europe 1450-1600; political, economic, religious developments in the transition from medieval to modern Europe; impact of Reformation upon politics and economics. (HARRIS)
- 449 Age of Absolutism (3 cr) F or S (148)**
Europe 1600-1763; rise of absolute states in 17th century; political, social, economic life of the Old Regime to the beginning of the revolutionary movement. (HARRIS)
- 451 The Revolutionary Era (3 cr) F or S (103)**
Europe 1763-1815; origins of the revolutionary movement; revolutionary decade in France; Napoleonic era and its impact on France and Europe. (HARRIS)
- 453-454 Europe from Vienna to Versailles (3 cr) F-S (105-106)**
Revolution and reform in the 19th century; international friction after 1870, culminating in irredentist and imperialist rivalries and world war. (PROCTOR)
- 455-456 Recent Times (3 cr) F-S (117-118)**
Europe and its impact on world-wide events. 455: 1914 to 1939. 456: World War II and postwar era. (PROCTOR)
- 461 Economic History of Europe (3 cr) F or S (135)**
Agriculture, industry, commerce in England and the continent.
- 464 European Diplomatic History 1500-1914 (3 cr) F or S (143)**
Development of the European state system; struggle for control over central Europe; Near Eastern Question; diplomacy of imperialism; diplomatic background of World War I. (WINKLER)
- 465-466 Social and Cultural History of Europe (3 cr) F-S (173-174)**
465: Renaissance and 18th-century Enlightenment. 466: cultural and intellectual trends in the 19th and 20th centuries. (HARRIS)
- 467-468 History of Russia (3 cr) F-S (109-110)**
467: Medieval Russia, Muscovite Russia, St. Petersburg period to 1856. 468: reform era, rise of revolutionary movements, revolution of 1917; Soviet period to the present. (HARRIS)
- 469 France Since Napoleon (3 cr) F or S (142)**
Evolution of the French nation, parliamentary monarch; Second Empire; Third Fourth and Fifth Republics. (HARRIS)
- 471 English Constitutional History (3 cr) F or S (157)**
Origin, expansion and change of the constitution and government of England from Anglo-Saxon times to the present.
- 473-474 Tudor and Stuart England (3 cr) F-S (155-156)**
Royal prerogative versus representative government; rise of middle class; exploration and colonization; religious changes and conflicts; culture. 473: Tudor rulers. 474: Stuarts. (HACKMANN)
- 475-476 The British Empire (2 cr) F-S (107-108)**
Second Hundred Years' War; expansion of England; relations of England with other colonial powers; acquisition of India; rise of a consciousness of empire and an imperial policy; Commonwealth of Nations.
- 497-498 Great Epochs and Interpretations (3 cr) F-S (191-193)**
Topical and comparative studies in major problems and concepts in history as interpreted by major historians.

500 Master's Research and Thesis (cr arr) F & S (300)

507-508 Seminar (2-4 cr) F-S (207-208)

- (a) European History. (HARRIS, PROCTOR)
- (b) English History. (HACKMANN)
- (c) American History. (BARNES, GREEVER, ROLLAND, WINKLER)
- (d) Problems in the History of the West

509-510 Directed Reading (1-3 cr, max 15) F-S (209-210)

- (a) American Foreign Relations
- (b) American Frontier
- (c) Society and Thought in America
- (d) Pacific Northwest
- (e) American Economic Progress
- (f) America Before 1789
- (g) Evolution of the English Constitution
- (h) Emergence of the British Commonwealth
- (i) Early Modern England
- (j) Greek and Roman History
- (k) Middle Ages
- (l) Renaissance and Reformation
- (m) Age of Absolutism and the Revolutionary Era
- (n) 19th-Century Europe
- (o) The 20th Century
- (p) Evolution of Russia
- (q) Evolution of France
- (r) Society and Thought in Europe
- (s) European Economic Progress
- (t) European Foreign Relations
- (u) Hispanic America
- (v) Modern Mexico
- (w) United States Since 1896
- (x) United States, 1789-1828
- (y) United States, 1828-1895
- (z) United States, 1865-1895

Prereq: perm.

590 Introduction to Historical Research (2 cr) F (290)

Techniques in compiling a bibliography, assembling material, composition, interpretation, and historical criticism. (ROLLAND)

591-592 Historiography (2 cr) F-S (291-292)

Nature of history; major historians; ideas in history; philosophy of history; bibliography. 591: American historians. 592: European and British historians. (HARRIS, WINKLER)

600 Doctoral Research and Dissertation (cr arr) F & S (300)

HOME ECONOMICS (HEc)

Frances J. Parker (Head), Professor Bellinger; Associate Professors Aller, Newcomb, Parker; Assistant Professors Forbes, Kessel, Kiehn, Medsker, Old, Potter, Scrimsher, Smelcer.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 113 Art (3 cr) F & S (13)**
Art and crafts for home and community. One lec and two 3-hr labs per wk.
- 123 Textiles (3 cr) F & S (23)**
Properties of natural and synthetic fibers, yarns and fabric structure, dyes and finishes, labeling, legislation, and trade conditions affecting the consumer.
- 124 Clothing (3 cr) F & S (24)**
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 6 hrs of lab per wk.
- 170 Family Nutrition and Meal Management (2 cr) F & S (3)**
Basics. Open to men and women; primarily for non-majors. One lec and one 3-hr lab per wk.
- 229 Clothing Selection (2 cr) F & S (65)**
Factors affecting the selection of adult clothing; means of expressing individuality in the wardrobe.
- 234 Introduction to Child Development (2 cr) F & S (34)**
Development and guidance of the preschool child. One lec and 2 hrs of supervised nursery school observation per wk.
- 242 Household Equipment (3 cr) F & S (52)**
Selection, use and care. Two lec and one 3-hr lab per wk.
- 270 Nutrition (3 cr) F & S (6)**
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, food additives, and nutrition for athletes. Open to non-majors.
- 271 Foods (3 cr) F & S (8)**
Basic cookery and meal planning. Two lec and two 2-hr labs per wk. Prereq: 270, Chem 103 or 111; may parallel Chem 112, 114 or 275.
- 272 Food Management (3 cr) F & S (73)**
Food preservation, marketing, table service, meal planning, and food preparation techniques. Two lec and one 3-hr lab per wk. Prereq: 271
- 314 Weaving (3 cr) F & S (14, 114)**
Principles, techniques and aesthetics of handweaving. One lec and 6 hrs of lab per wk.
- 324 Flat Pattern Study (3 cr) F & S (124)**
Fitting and pattern alteration for individualized shell and sloper; flat pattern design; construction related to original patterns. One lec and 6 hrs of lab per wk. Prereq: 124.

- 326 Housing and Home Furnishings (3 cr) F & S (141)**
Housing principles, furniture, materials and color in the present day home. Two lec and 3 hrs of lab per wk.
- 327 Tailoring (3 cr) F (161)**
Alt/yrs 1969-70. Textile selection for tailored garments; comparative study of tailoring techniques. One lec and 6 hrs of lab per wk. Prereq: 124.
- 329 History of Costume and Textiles (3 cr) F**
Alt/yrs 1969-70. Costume as an expression of the times. Prereq: 229.
- 334 Child Development (3 cr) F & S (135)**
Principles of development in infants and children. Two lec and supervised nursery school experience equiv to one 3-hr lab per wk. Prereq: Psych 100, Soc 110, or perm.
- 335 History and Philosophy of Child Development (2 cr) S**
Prereq: 234 or 334, or Soc 110 and Psych 100.
- 340 Family Relations (2 cr) F & S (130)**
Interpersonal relationships throughout the family life cycle. Prereq: Psych 100 or Soc 110 or perm.
- 346 Principles of Home Management (2 cr) F & S (146)**
Analysis of resources in meeting family goals; time and money management; work simplification; emphasis on decision making and evaluation as family processes. Open to non-majors by perm.
- 347 Home Management House Residence (3 cr) F & S (147)**
Management; emphasis on relationships, decision-making. Residence 6-8 wks. Advance reservation with dept required. Prereq: 272 and perm of dept; prereq or coreq: 346.
- 349 Home Management for Married Students (3 cr) F & S (149)**
Comparable to 347 for homemakers or students with special dietary or other problems. Prereq: 272; prereq or coreq: 346.
- 352 Methods in Teaching Home Economics (3 cr) F & S (152)**
Techniques and materials for secondary schools; lesson plan development for homemaking classes. Prereq: Ed 287, Psych 206, AgEd 351, or perm.
- 370 Nutrition for the Elementary School (2 cr) SS**
Fundamentals of nutrition and methods of teaching nutrition in the elementary grades. Primarily for elementary teachers and student teachers.
- 413 Textile Design (2 cr) S**
Alt/yrs 1969-70. 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.
- 423 Advanced Textiles (3 cr) S**
Textile performance and problems involving recent development in textile products. Two lec and one 3-hr lab per wk. Prereq: 123.
- 424 Original Design (3 cr) S**
Alt/yrs 1970-71. Design, rendering, and construction of apparel; emphasis on contemporary environment. One lec and 6 hrs of lab per wk. Prereq: 324, 329, 429.

- 426 History of Interiors and Furnishings (3 cr) S (144)**
Alt/yrs 1970-71. History and development of styles and design in furniture and interiors as expressions of changes in art and culture. Prereq: 326 or perm.
- 428 Family Housing (2 cr) F**
Housing for contemporary living; family life cycles, socio-economic aspects of family housing, site selection, floor plans, building materials and outside environment. One lec and 3 hrs of lab per wk.
- 429 Social-Psychological Aspects of Clothing (2 cr) F (137)**
Alt/yrs 1970-71. Clothing in relation to culture, human behavior, aesthetics, the economy, and the physical self. Prereq: 229, Psych 100, Soc 110, or perm.
- 434 Nursery School Participation (2-4 cr) F & S**
Active participation in the nursery school lab; application of child development theory; management and procedure of the pre-school group. Prereq: sr standing in child development option or perm.
- 442 Current Developments in Household Equipment (2 cr) SS (142)**
Available space and selection of functional equipment; materials, construction, operation, care and relative cost. Prereq: 242.
- 448 Consumer Education (1-4 cr) F & S (187, 189)**
Consumer motivation and behavior, protection, information, organizations, use of credit, and selected problems in consumer decision-making.
- 453 Problems in Teaching Home Economics (2 cr) F & S (153)**
Home economics teachers' problems. Prereq: 352, summer project.
- 456 Methods in Adult Home Economics Education (2 cr) F & S (156)**
- 457 Student Teaching in Home Economics Classes (9 cr) F & S (157)**
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. September initiation; acceptance into teacher education program.
- 470 Problems in Nutrition (3 cr) F or S (106)**
Recent advances; emphasis on investigation of infant, child and adult nutrition. Prereq: 270, Zool 118, sr or grad standing.
- 471 Dietetics (4 cr) S (104)**
Diet therapy; adaptation of the normal diet to meet needs of adults and children in disease and convalescence. Prereq: Anl 305.
- 472 Food Chemistry and Analysis (3 cr) S (107)**
See AgBIC 422 for description. (Lab sec A for home economics majors.)
- 478 Recent Advances in Foods (2 cr) F or S (178)**
Topics in food preservation and processing; development of low calorie foods and commercial mixes; food additives. Prereq: 271 or equiv.
- 482 Quantity Cookery (3 cr) F or S (182)**
Preparation of food in large quantities; menu planning for institutions; lab experience in institution food services. One lec per wk; two 6-hr labs per wk for 9 wks (1-7 pm); one 1-day field trip.
- 483 Institutional Administration (4 cr) F or S (183)**
Organization and scientific management applied to institutional administration in food service units; selection, arrangement and care of equipment. Three lec and one 2-hr lab per wk.

- 485 Institution Food Buying (2 cr) F or S (185)**
Food distribution, specifications and legislation; methods of quantity food purchasing. Prereq: 272 or perm.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 505 Seminar (1-2 cr) F & S (205)**
- 510 Directed Readings (1-3 cr) F & S (210)**
(a) Child Development (d) Food and Nutrition
(b) Economic Problems of the Family (e) Home Furnishings
(c) Family Relations (f) Clothing and Textiles
Literature of the field. Prereq: perm.
- 540 Parent-Child Relationships (2 cr) F or S**
The developing family; patterns of child rearing. Prereq: 334, 340 and 6 cr in psych and/or soc or equiv. Open to non-majors.
- 546 Problems in Home Management (2 cr) SS**
Selected topics. Prereq: 346 or equiv.
- 551 Techniques of Supervision (2 cr) SS (207)**
- 553 Home Economics Education (1-4 cr) F or S (203)**
- 554 Curriculum in Home Economics (2 cr) F or S (204)**
Problems and planning in secondary-school homemaking education.
- 570 Current Concepts in Nutrition (2 cr) SS (206)**
Innovative concepts and special techniques in nutrition research; current scientific investigations; present-day nutrition problems. Prereq: 470, Zool 118, 127, or equiv.
- 583 Recent Trends in Institutional Management (2 cr) SS**
Management principles applied to food service institutions. Prereq: 483.

HONORS (Hon)

Elmer K. Raunio (Chairman, Honors Committee of the College of Letters and Science).

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

PREREQUISITE: Students are admitted to the following courses only by invitation of the Honors Committee of the College of Letters and Science.

251-252 Humanities (3 cr) F-S (51-52)

251: understanding of music and art of a selected century. 252: the literature of the same period. Class limited to 20 students. Open by invitation to students planning to major in one of the social or natural sciences.

261-262 Social Sciences (3 cr) F-S (51-52)

Major classical works or the main currents of contemporary thought which appear in the various social sciences. Class limited to 20 students. Open by invitation to students planning to major in one of the humanities or natural sciences.

271-272 Natural Sciences (3 cr) F-S (51-52)

Representative classical scientific experiments in connection with laboratory ex-

periments and mathematics, plus the major scientific work of the 20th century. Class limited to 20 students. Open by invitation to students planning to major in one of the humanities or social sciences.

301-302 Honors I (3 cr) F-S (101-102)

- | | | |
|------------------|-----------------------|-----------------------|
| (a) Anthropology | (h) English | (o) Philosophy |
| (b) Architecture | (i) Foreign Languages | (p) Physics |
| (c) Art | (j) History | (q) Political Science |
| (d) Biology | (k) Home Economics | (r) Radio-Television |
| (e) Botany | (l) Journalism | (s) Sociology |
| (f) Chemistry | (m) Mathematics | (t) Speech |
| (g) Dramatics | (n) Music | (u) Zoology |

Directed program of individual study to provide the student an opportunity for more advanced work than is normally available to undergraduates.

401-402 Honors II (3 cr) F-S (103-104)

See 301-302 for the subtitles (fields) offered. Intended to provide the student with more intensive training and or reserach experience than is ordinarily available to undergraduates.

HYDROLOGY (Hydro)

George A. Williams (Head, Geology and Geography). Associate Professors Jones, R. Williams; Instructor Ross.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

500 Master's Research and Thesis (cr arr) F & S (300)

563 Geohydrology (3 cr) F or S (263)

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 447, Math 200, or perm. (R. WILLIAMS)

566 Geochemistry of Ground Water (3 cr) F or S (266)

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 447 or perm.

567 Hydrometeorology (3 cr) F or S (267)

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.

568 Advanced Geohydrology (3 cr) F or S (268)

Analysis of problems which have confronted the geohydrologist since the inception of quantitative methods. Prereq: Geol 563 or perm. (R. WILLIAMS)

INDUSTRIAL EDUCATION (IEd)

Hervon L. Snider (Head, Department of Education); Professor Biggam (Chairman); Instructor Smith.

See the beginning of Part III(Course Descriptions) for numbering system and key to abbreviations and symbols.

130 Basic Electricity (4 cr) F or S (30)

Technical theory and skills in electrical testing procedures; preparation of instructional materials for a junior high school program.

131 Basic Electronics (4 cr) F or S (31)

Continuation of 130. Electron tube and semi-conductor circuits. Prereq: 130.

140 Woodwork I (3 cr) F (40)

Hand tool and machine operations; materials, equipment and processes; selection and fabrication of industrial woodwork products.

170 Machine Woodwork (3 cr) S (70)

Adjustment and safe operation of basic woodwork power tools; selection and fabrication of products for machine woodwork; materials and processes. Prereq: 140.

235 Communication Electronics (4 cr) F or S (35)

Application of electronic circuits to communications equipment; radio receivers and transmitters; technical radio and TV for avocational use. Prereq: 130-131.

236 Industrial Electronics (4 cr) F or S (36)

Continuation of 235. Theory and test procedures common to industrial control and automatic processing; computer electronics. Prereq: 235.

250 General Metals (3 cr) F or S (50)

Materials, machines and fabricating processes; methods and techniques of fabricating products from perforated and expanded metal, aluminum, wrought iron, mild steel and galvanized iron.

251 Plastics (2 cr) F or S (51)

Materials and industrial methods of fabrication; vacuum, blow and pressure forming; laminating; extrusion; plastisol and injection molding.

280 Carpentry (2 cr) F or S (80)

Alt/yrs 1970-71. Framing, rafter layout; materials and job estimating. Prereq: 170 or perm.

290 Industrial Arts Crafts (2 cr) F or S (90)

Alt/yrs 1970-71. Creative craftwork in leather, Keene cement, metal tooling, metal enameling, craft plastics and mosaic tile.

300 Finishing Materials and Methods (2 cr) F or S (100)

Alt/yrs 1970-71. Methods and materials relative to finishing wood, metal, composition board, plastics, and other industrial products.

310 Maintenance of Tools and Equipment (3 cr) F (110)

Selection, care and maintenance of hand tools and machines common to industrial arts and vocational-technical shops. Prereq: 170 or perm.

315 Industrial Design (2 cr) F or S (115)

Alt/yrs 1969-70. Planning, designing and fabricating products from a variety of

industrial materials; period furniture and principles of product design. Prereq: 170 or perm.

350 Workshop (1-3 cr, max 6) SS (150)

(a) Electricity

(c) Instructional Materials

(b) Drafting

(d) Production Methods and Techniques

Consult the summer school bulletin for the length and special emphasis of each workshop when offered. Prereq: perm.

360 Industrial Education for Elementary Teachers (3 cr) F or S (60)

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.

365 Industrial Supervision (2 cr) F or S (165)

Alt/yrs 1970-71. 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.

404 Industrial Education and Work Experience Programs for Special Education Teachers (3 cr) F or S

Industrial education programs in schools; development and coordination of work experience programs; planning and implementation of manual arts therapy programs.

405 Advanced Woodwork (3 cr) F or S (105)

Alt/yrs 1970-71. Design and construction of wood products; use of fixtures, jigs and templates; structural details of cabinet construction; fastening devices; materials and processes. Prereq: 170 or perm.

410 Advanced Metals (3 cr) F or S

Alt/yrs 1969-70. Materials, tools and processes of metal technology; students may specialize in one or several areas. Prereq: 250 or perm.

420 Evaluation in Industrial Education (3 cr) F & S (220)

Alt/yrs 1969-70. Also offered 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.

425 Advanced Electricity-Electronics (4 cr) F or S (125)

Independent readings, research and lab experimentation. Prereq: 235-236 or perm.

450 Industrial Safety (3 cr) F or S (152)

Also offered 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.

451 School Shop Planning and Administration (3 cr) F or S (151)

Also offered as VocEd 451. Technical shops and laboratories; selecting, purchasing and storage of shop supplies and equipment; organizing a shop personnel system; implementing shop safety programs; maintaining shop records.

462 Industrial Education Curriculum (3 cr) F or S (162)

Also offered as VocEd 462. Principles of occupational analysis and course construction; subject content; state curriculum patterns; special education programs; trends and new concepts.

- 472 Industrial Education Methods (3 cr) F or S (172)**
 Also offered 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.
- 480 History and Philosophy of Industrial Education (3 cr) F or S (101)**
 Development of vocational and general education phases of industrial education; comparative and conflicting philosophies; leaders and their contributions.
- 490 Directed Study (1-3 cr, max 6) F & S (190)**
 Prereq: perm.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 510 Professional Problems (1-3 cr, max 6) F & S (200a)**
 Max 6 cr in 510-511 combined. Prereq: perm.
- 511 Technical Problems (1-3 cr, max 6) F & S (200b)**
 Max 6 cr in 510-511 combined. Prereq: perm.
- 530 Administration and Supervision of Industrial Education Programs (3 cr) F or S (230)**
 Principles and practices; secondary-school and post high school levels; federal and state legislation regarding industrial education programs.
- 540 Instructional Media for Industrial Education (3 cr) SS**
 Preparation and use of new instructional media and systems for industrial-technical arts and technical-vocational subjects.
- 550 Seminar in Industrial Education (2 cr, max 4) F or S**
 Discussion, analysis and interpretation of trends and issues.

INTERDISCIPLINARY STUDIES (Inter)

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols!

201 Seminar (1 cr, max 2) F & S

Integrated series of discussions organized by members of various departments on topics of general interest to the participants. One 2-hr session per wk. Prereq: soph standing or perm of committee.

301 Seminar (1 cr, max 2) F & S

See 201 for description. Prereq: jr standing or perm of committee.

401 Seminar (1 cr, max 2) F & S

See 201 for description. Prereq: sr standing or perm of committee.

493-494 Seminar in Urban Studies (2 cr) F-S

Also offered as Arch, Bus, CE, 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.

580 Seminar in Administration and Contemporary Issues (3 cr) F & S

Also offered as Bus, Ed, or PolSc 580. Interdisciplinary approach to complex problems confronting administrators in the fields of business, education and government; resources and talents from such academic disciplines as business, education and public administration are utilized. Prereq: perm.

589 Water Resources Seminar (1 cr) F or S

Also offered as AgE, For, or Geol 589. Reports by faculty members and graduate students on current problems and projects; reports are organized to give maximum interchange of ideas between divisions.

INTERIOR DESIGN—See Architecture

ITALIAN—See Foreign Languages

JOURNALISM (Jour)

Gordon Law (Head, Communications). Professor Gibbs; Associate Professor Cross (Chairman); Instructor Conway.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

221 News Writing (2 cr) F & S (81)

Principles of news writing for newspapers and radio. Two 2-hr lec-labs per wk. Prereq: ability to type.

- 222 Reporting (3 cr) S (82)**
Types and sources of news; gathering and writing news for newspaper and radio use. Two rec and one lab per wk. Prereq: 221.
- 247 Typography and Printing Processes (3 cr) F (97)**
Printing and layout problems of newspapers, magazines and other publications. Two lec and one lab per wk.
- 324 Special Feature Articles (2 cr) S (186)**
Writing of feature articles for newspapers and magazines in specialized areas such as home, garden and agriculture. Prereq: 221 or perm.
- 354 News Editing (3 cr) S (184)**
News selection, evaluation, editing, display; responsibilities of copyreader. Two rec and one lab per wk. Prereq: 221-222 or perm.
- 362 Retail Advertising (2 cr) F (187)**
Application of fundamentals of advertising to a retail program; preparation, selling and servicing of advertising through local media.
- 366 Advertising Copy and Layout (3 cr) S (128)**
Selection and presentation of advertising appeals through the media; typography, layout; copywriting. Two lec and one lab per wk. Prereq: 221, 247, or perm.
- 370 Advertising Media (2 cr) S (190)**
Analysis in terms of markets and audience; planning regional and national campaigns.
- 384 Industrial Journalism (3 cr) S (178)**
Writing, editing, layout and other operations of the business press; layout and publication of periodicals and brochures. Two lec and one lab per wk.
- 405 Supervising High School Publications (2 cr) S (175)**
For secondary-school teachers. Planning and direction of the newspaper and yearbook; teaching methods for journalism.
- 423 Public Affairs Reporting (3 cr) F (181)**
Practice in reporting public affairs; practical work in the professional field. One lab per wk. Prereq: 221-222 or perm.
- 432 Magazine Article Writing (2 cr) S (162)**
For students in any field. Development of articles for publication in trade, regional and national magazines; all types of magazines studied.
- 433 Interpreting Contemporary Affairs (2 cr) F (183)**
Interpretive and explanatory writing on current affairs; practice in writing editorials and columns. Prereq: 221-222 or perm.
- 455 History of Journalism (2 cr) F (185)**
Evolution of the newspaper and mass media; role of the press from colonial to modern times.
- 472 Principles of Public Relations (3 cr) F (172)**
Problems and practices; techniques for mass media; projects related to student's major interest.
- 491 Law of the Press (2 cr) F (191)**
Alt/yrs 1969-70. Freedom of the press, libel, right to know, privacy, contempt, regulation of advertisement; the press in terms of radio and television.

492 Journalism and Public Opinion (2 cr) F or S (192)

Role of news media in formation of public opinion; publicity and propaganda techniques of government, economic and social groups.

496 Proseminar (2 cr) S (196)

Current problems; responsibilities, ethics, criticism; current research. Prereq: sr standing or perm.

499 Individual Problems (1-3 cr) F & S (199)

Prereq: perm.

LANDSCAPE ARCHITECTURE — See Architecture

LATIN — See Foreign Languages

LAW (Law)

Albert R. Menard (Dean). Professors Bell, Jones, Menard, Peterson, Stevenson, Viera; Associate Professors Grant, Hall.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

Registration in any law course by non-law students requires permission in advance by the dean of the College of Law and the instructor of the course.

501-502 Contracts I-II (2 cr) F-S (101-102)

Vocabulary and methodology of law; promises courts do and do not enforce.

503-504 Legal Writing I-II (1 cr; 2 cr) F-S (103-104)

Use of law books; writing of memoranda and briefs; oral argument on the briefs.

505-506 Procedure I-II (3 cr) F-S (107-108)

Civil procedure, jurisdiction, venue, pleading, motions, joinder, discovery, trials, appellate procedure.

507-508 Property I-II (3 cr) F-S (112-113)

Future interests, landlord and tenant, recording acts, public control of land use.

509-510 Torts I-II (3 cr; 2 cr) F-S (115-116)

Redress for injuries, interference with personal and property interests, liability without fault.

511 Fundamentals of Public Law (3 cr) F (123)

Antecedents in English legal history and current application of selected basic American constitutional and legislative doctrines.

512 Criminal Law and Its Administration (3 cr) S (131)

Purposes of criminal law, criminal responsibility, elements of crimes, administration of criminal justice.

530 Constitutional Law (3 cr) F (214)

Constitutional limitations on the federal and state governments.

531 Administrative Law (3 cr) F (217)

Regulation of economic and other activity by administrative agencies.

- 532 Creditor's and Debtor's Rights (3 cr) F (236)**
Liens, executions and provisional remedies, insolvent and bankrupt estates.
- 533 Commercial Paper (2 cr) F 243**
Negotiable instruments under the Uniform Commercial Code.
- 534 Natural Resources (3 cr) F (250)**
Water rights, federal-state relations in developing water resources, Mineral rights.
- 535 Business Associations (4 cr) F (268)**
Types of business organizations, limitations on powers and authority, securities, shareholders' and creditors' rights.
- 536-537 Taxation I-II (3 cr, 2 cr) F-S (274-275)**
536: income and deductions, accounting methods, capital gain, taxation of trusts, estates and partnerships. 537: corporation, trust and partnership tax planning.
- 538 Labor Law (2 cr) F (277)**
Law governing relations between employers and employees.
- 539 Family Law and Community Property (3 cr) S (205, 220)**
Legal problems of the family and community and separate property.
- 540 Evidence (4 cr) S (207)**
Presentation of evidence to a tribunal, examination and impeachment of witnesses, functions of judge and jury.
- 541 Remedies and Restitution (3 cr) S**
Legal relief available to aggrieved parties in contractual or other relationships
- 542 Wills, Estates and Trusts (3 cr) S (225)**
Intestate succession, wills and administration of estates in probate.
- 543 Federal Jurisdiction (3 cr) S (240)**
Allocation of jurisdiction as between state and federal courts.
- 544 Sales and Products Liability (3 cr) S (244)**
Sales of property under the Uniform Commercial Code, products liability under the Code and in tort.
- 545 Security (3 cr) F (219)**
Suretyship, mortgages, security interests under the Uniform Commercial Code.
- 546 Municipal Corporations (2 cr) F (226)**
Municipal corporations, powers, contracts, liability, and debt limitations.
- 547 Estate Planning (4 cr) F (251)**
Estate and gift tax impact on disposition of property at death.
- 548-549 Practice Court I-II (1 cr) F-S (270, 280)**
Conduct of moot court cases.
- 550 Government Regulation of Business (3 cr) S (218)**
Governmental regulation of economic activity.
- 551 Legal Practice (1 cr) S (227)**
Status, function and responsibility of the legal profession.
- 552 Conflict of Laws (3 cr) S (225)**
Principles for ascertaining applicable law, jurisdiction of courts, enforcement of foreign judgments.

- 553 Legislation (2 cr) S (295)**
The legislative process, the interpretation of statutes.
- 560 Problems in Natural Resources (2 cr) S (254)**
Seminar. Analysis of natural resources problems of particular concern to Idaho and the Pacific Northwest; written papers. Prereq: 534.
- 570 Legal Research (1-2 cr, max arr) F & S (282)**
Individual study and preparation of paper. Prereq: perm of dean and adviser.
- 571 Legal Aid (2 cr) S**
Clinical program in conjunction with legal assistance to indigents.
- 572 Law Review (1-2 cr) S**
The awarding of credit for this is subject to approval by the editor-in-chief and faculty adviser.
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LIBRARY SCIENCE (LibSc)

Hervon L. Snider (Head, Department of Education).

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 420 Classification and Cataloging (4 cr) F & S (120)**
Organization of library materials; principles of cataloging, subject analysis, classification, bibliographical methods; Dewey decimal system.
- 421 Selection of Books and Related Materials (3 cr) F & S (121)**
Evaluation and selection of books and other materials for libraries; analysis of community library needs and interests.
- 422 Use of the School Library (2 cr) F & S (122)**
Methods of interesting students in the library and using it to best advantage.
- 423 Reference in School Libraries (3 cr) F & S (123)**
Reference books in school and public libraries; judging and selecting reference collections.
- 424 Children's Literature (3 cr) F & S (124)**
Selection of children's literature for elementary-school libraries; trends; interests of various ages; illustrators.
- 425 School Library Problems (2-4 cr) F & S (125)**
Directed study; organization and management of school libraries.

MATHEMATICS (Math)

Howard E. Campbell (Head), Professors Campbell, Crowley; Associate Professors Botsford, Cobb, Walker; Assistant Professors Barbut, Bobisud, Calvert, Christenson, Dierker, Goetschel, Neuhaus, Potratz, Royalty, Wang.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

CREDIT LIMITATIONS Max 12 cr in Math 111, 112, 140, 141, 190 combined; Math 111 carries no cr after 140; Math 112 carries 3 cr after 140 or former 9; Math 140-141 each carry 2 cr after 111; Math 140 carries no cr after 111-112 or former 9; Math 141 carries 2 cr after 112.

PREREQUISITE: All mathematics courses allow either the stated prerequisite or permission, except where specifically noted.

R80 Remedial Mathematics (0 cr) F or S (RB)

Fundamentals of algebra. Prereq: 1 yr high school algebra and perm.

R90 Basic Engineering Mathematics (0 cr) F or S (RR)

Review of parts of college algebra, calculus and differential equations important in engineering curricula. Prereq: perm.

111-112 Fundamentals of Mathematics (4 cr) F & S (1-2)

Terminal sequence. Nature of mathematics; fundamental concepts of algebra, set theory, geometries, probability, and calculus. Prereq: 1 yr high school algebra and 1 yr of plane geometry.

135-136 Number System and Its Structure (3 cr) F-S (15-16)

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.

140 College Algebra (3 cr) F & S (17)

Properties of real numbers; algebraic, exponential and logarithmic functions, complex numbers, sequences and series. Prereq: 1½ yrs high school algebra and 1 yr of plane geometry, or equiv. or 111.

141 Analytic Trigonometry (2 cr) F & S (18)

Circular and trigonometric functions, inverse functions, applications including De Moivre's theorem. Prereq: 2 yrs high school algebra and 1 yr plane geometry or 140. (If prereq to 140 satisfied, 140-141 may be taken concurrently.)

180 Analytic Geometry and Calculus I (4 cr) F & S (50)

Functions, limits, continuity, differentiation, integration, applications, differentiation and integration of transcendental functions. Prereq: 2 yrs high school algebra and 1 yr plane geometry and ½ yr of analytic trigonometry, or equiv. or 141.

R181 Analytic Geometry and Calculus I (3 cr) F or S (R53)

Function, rate of change, limits, continuity, differentiation of algebraic functions with applications, integration. Prereq: perm.

184 Elements of Linear Algebra (2 cr) F or S (57)

Vector spaces, linear transformations, matrices, linear equations and determinants, characteristic values. Prereq: 140.

- 186 Theory of Numbers (3 cr) S (60)**
Elementary number theory, including divisibility properties, congruences and Diophantine equations. Prereq: 180.
- 190 Analytic Geometry and Calculus II (4 cr) F & S (51)**
Differentiation and integration of transcendental functions, integration techniques, general mean value theorem, numerical techniques, series. Prereq: 180.
- R191 Analytic Geometry and Calculus II (3 cr) F or S (R54)**
Applications of the definite integral, differentiation and integration of transcendental functions, methods of integration, determinants and linear equations. Prereq: perm.
- 200 Analytic Geometry and Calculus III (3 cr) F & S (52)**
Vectors, functions of several variables, multiple integration. Prereq: 190.
- R201 Analytic Geometry and Calculus III (3 cr) F or S (R55)**
Two and three dimensional analytic geometry, vectors, hyperbolic functions, parametric equations, polar coordinates. Prereq: perm.
- 205 Introduction to Computer Programming (3 cr) F or S (80)**
Characteristics of digital computers from programmer's viewpoint; programming principles; introduction to programming in Fortran and PL/I.
- R211 Analytic Geometry and Calculus IV (3 cr) F or S (R56)**
Partial derivatives, multiple integrals, infinite series, complex numbers and functions. Prereq: perm.
- 300 Mathematics for Teachers (3 cr) F or S (142)**
Sets, number systems, elementary number theory, geometric constructions, projective geometry, Euclidean geometry. Prereq: 180.
- N301 Calculus (3 cr) SS (N143)**
Review of basic calculus, functions, graphs, slopes, limits, continuity, derivative, rate of change, extreme, integral, moments, applications.
- 305 Digital Computers (3 cr) F or S (107)**
Advanced programming techniques, data management and retrieval, operating systems. Prereq: 200 or 205.
- 310 Ordinary Differential Equations (3 cr) F & S (101)**
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, existence theorems. Prereq: 200.
- 315 Vector Calculus (3 cr) F or S (105)**
Differential and integral calculus of vectors; line, surface and volume integrals, divergence, curl, Stokes' theorem, related applications. Prereq: 200.
- 320 Probability and Statistics (3 cr) F or S (116)**
Sample spaces, random variables, distribution functions, estimation and testing of hypotheses. Prereq: 190.
- 331 Algebra for Elementary School Teachers (3 cr) F (129)**
Properties of real numbers, linear equations and inequalities, modular arithmetic, complex numbers, polynomials, algebraic structures, functions. Prereq: 136.
- 332 Geometry for Elementary School Teachers (3 cr) S (130)**
Experimental and informal geometry, points, lines, planes, space, congruence

and measurement, geometric construction, space figures, similarity and trigonometry, spherical geometry, plane coordinated geometry. Prereq: 136.

- 370 Numerical Analysis (3 cr) S (108)**
Numerical methods useful in solving applied problems; calculus of finite differences. Prereq: 200.
- 380 Introduction to Complex Variables (3 cr) F or S (181)**
Theory of functions of one complex variable and its applications. Prereq: 200.
- 390 Postulational Geometry (3 cr) F or S (117)**
Postulates of Hilbert and Euclid; non-Euclidian geometries; the Erlanger program; projective geometry. Prereq: 200.
- 400 Readings in Mathematics (1-3 cr) F & S (180)**
- N407 Number Theory (3 cr) SS (N146)**
Elementary number theory, including divisibility properties, congruences, Diophantine equations, primitive roots, well-known theorems and conjectures.
- 440 Linear Algebra (3 cr) F or S (103)**
Algebra and geometry of vector spaces, linear transformations and matrices, quadratic forms, symmetric matrices, characteristic vectors and roots. Prereq: 184.
- N441 Linear Algebra (2 cr) SS (N102)**
Algebra of vector spaces, linear transformations and matrices.
- 451-452 Probability Theory and Mathematical Statistics (3 cr) F-S (119-120)**
Random variables, distribution functions, characteristic functions, limit theorems, distribution of sample statistics, order statistics, estimation, testing hypotheses. Prereq: 184, 200.
- N453 Probability and Statistics (3 cr) SS (N147)**
Basic probability theory, distributions, frequency, sampling theory, testing hypotheses.
- N460 Set Theory and Logic (3 cr) SS (N144)**
Elementary set operations, cardinality and symbolic logic.
- 461-462 Higher Algebra (3 cr) F-S (109-110)**
Abstract algebra. Prereq: 184.
- 471-472 Advanced Calculus (3 cr) F-S (121-122)**
Analysis: elementary topology of Euclidean n -space, limit concept and continuity, differentiation, and integration theory. Prereq: 184, 200.
- 481 Fourier Analysis (3 cr) F (131)**
Fourier series, Fourier transforms and boundary value problems of mathematical physics. Prereq: 310.
- 482 Advanced Applied Mathematics (3 cr) S (132)**
Partial differential equations and boundary value problems, Green's functions, perturbation techniques, calculus of variations. Prereq: 481.
- N483 Modern Algebra (3 cr) SS (N145)**
Properties of groups, rings, integral domains and fields. Coreq: N460 recommended.
- 490 Introduction to Set Theory (3 cr) F or S (151)**
Set operations, functions, binary operations and relations, cardinal and ordinal

numbers, axiom of choice, partially ordered sets, and Zorn's lemma. Prereq: 200.

- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 501 Readings in Mathematics (1-3 cr, max 12) F & S (201-202)**
- N505 Probability and Statistics (3 cr) SS (N293)**
Probability nature of statistical methods, frequency distributions, sampling theory.
- N506 Concepts of Analysis (3 cr) SS (N294)**
Sets, relations, functions, Dedekind cuts, sequences, limits of functions, differentiation and integration.
- N507 Number Theory (3 cr) SS (N297)**
Fundamentals; applications to the theory of numbers.
- N508 Directed Reading (1-6 cr) SS (N298)**
Max 3 cr may be completed in absentia.
- N509 Topology (3 cr) SS (N299)**
Construction of topologies, closure, dense sets, compactness, connectedness.
- 511-512 Topology (3 cr) F-S (231-232)**
Basic concepts of point set and algebraic topology.
- 516 Topics in Topology (3 cr) F or S (237)**
Algebraic methods and topics in topology.
- 521 Seminar in Topology (1-2, max arr) F & S**
Current literature.
- 525-526 Advanced Topics in Topology (3 cr, max 12) F-S (285-286)**
- 530 Differential Geometry (3 cr) F or S (218)**
Space curves, surfaces and geometry on surfaces; Gaussian and mean curvature, non-Euclidean geometries, Riemannian geometry.
- 531-532 Complex Variables (3 cr) F-S (221-222)**
Alt/yrs 1970-71. Theory of functions of complex variables.
- 535-536 Real Variables I-II (3 cr) F-S (226-227)**
Alt/yrs 1969-70. Theory of functions of real variables.
- 539 Theory of Ordinary Differential Equations (3 cr) F or S (241)**
Alt/yrs 1969-70. Systems of ordinary equations of first order, linear equations, equations of n 'th order with analytic coefficients and regular singular points, self-adjoint boundary value problems.
- 541 Seminar in Analysis (1-2, max arr) F & S (203-204)**
Current literature.
- 545-546 Advanced Topics in Analysis (3 cr, max 12) F-S (283-284)**
- 551-552 Abstract Algebra I-II (3 cr) F-S (209a-209b)**
Alt/yrs 1969-70. Structure of rings; Galois theory. Prereq: 462.
- 553-554 Abstract Algebra III-IV (3 cr) F-S (209c-209d)**
Alt/yrs 1970-71. Group theory; nonassociative algebras. Prereq: 462.
- 561 Seminar in Algebra (1-2 cr, max arr) F & S**
Current literature.
- 565-566 Advanced Topics in Algebra (3 cr, max 12) F-S (281-282)**

- R570 Advanced Numerical Analysis (3 cr) F or S (R208)**
Interpolation; numerical methods of differentiation, integration, and solution of algebraic and differential equations. Prereq: numerical analysis.
- 571-572 Functional Analysis (3 cr) F-S (247-248)**
Alt yrs 1970-71. Linear functionals on the space of continuous functions, linear transformations, Hilbert and Banach spaces, spectral theory. Prereq: 536.
- 574 Topics in Applied Mathematics (3 cr) F or S (254)**
Integral and differential equations.
- R577-R578 Advanced Mathematical Statistics (3 cr) F or S (R235-R236)**
Development and application of mathematical statistics to problems in the engineering sciences; applications. Prereq: perm.
- R580 Numerical Solutions of Partial Differential Equations (3 cr) F or S (R258)**
Finite difference methods for elliptic, parabolic and hyperbolic equations; solution methods suitable for digital computers; iterative methods for large scale linear systems. Prereq: perm.
- 585-586 Recent Developments in Mathematics (3 cr) F or S (261-262)**
For students with extensive background in specific phases.
- 600 Doctoral Research and Dissertation (cr arr) F & S (300)**

MECHANICAL ENGINEERING (ME)

Richard B. Stewart (Department Chairman). Professors Barnes, Stewart; Associate Professors Norgord, Silha; Assistant Professors Amos, Avery, Jacobsen, Penton, Travis; Instructors Gill, Pauley.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 253 Materials Processing Laboratory I (1 cr) F & S (53)**
Use of standard machine tools for shaping metals. Charge for materials payable at bursar's office. One lec-dem and one 2-hr lab per wk; one 1-day field trip. Prereq: Engr 101.
- 254 Materials Processing Laboratory II (1 cr) F & S (54)**
Theory and practice of welding, casting, heat treatment; developments in forming and shaping materials. Charge for materials payable at bursar's office. One lec-dem and one 2-hr lab per wk; one 1-day field trip. Prereq: 253.
- 261 Engineering Materials (2 cr) F & S (61)**
Materials properties; their influence on design and fabrication; testing, standards, codes. Prereq: Met 201.
- 303 Advanced Machine Tool Laboratory (2-3 cr) F & S (103)**
Primarily for industrial arts education students. Practice in fabrication of metals beyond that covered in 253-254; extra credit for individual projects. Charge for materials payable at bursar's office. One lec and one 3-hr lab per wk. Prereq: 254 and perm.
- 322 Applied Thermodynamics (4 cr) F & S (122; 136)**
Gas, vapor power, heat pump, refrigeration cycles; mixtures and psychrome-

trics; combustion; compressors, turbines, engines; air conditioning basic processes; measurements; testing equipment. Three lec and one 3-hr lab per wk. Prereq: ES 321.

323 Introduction to Mechanical Design (3 cr) F (63)

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: Engr 101, ES 210, 220.

324 Mechanical Design I (2 cr) S (124)

Stress and strain analysis, failure theories, design properties of materials; design for variable, impact loading; design of fastenings, springs, columns. One 1-day field trip. Prereq: 261, 323, ES 340.

326 Mechanical Engineering Project (1-3 cr) F & S (126)

Individual investigation and report; may be of a design, experimental or analytical nature, or combination. Prereq: jr standing and perm of dept.

360 Welding (2 cr) F (60)

Primarily for industrial arts education students. Principles and practices in cutting metals and fabrication by modern methods of welding; design, inspection, testing of weldments. Charge for materials payable at bursar's office. One lec and one 3-hr lab per wk. Prereq: perm.

365 Heat Treatment of Metals (2 cr) S (65)

Primarily for industrial arts education students. 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.

403 Materials Processing Engineering (3 cr) F or S

Economic and engineering aspects of materials processing and fabrication; selection of site and equipment; plant layout; materials handling; management, plant engineering, servicing; design of a small processing plant. Prereq: 254, 261, CE 382.

423 Dynamics of Fluids (3 cr) F (123)

Application of thermodynamics to fluid flow; mass transfer theory; unsteady flow, compressible flow; fluid machinery. Prereq: ES 320-321.

425 Mechanical Design II (3 cr) F (125 lec)

Continuation of 324. Combined stresses; design of transmission components and devices, brakes, weldments; lubrication theory, bearing design. Prereq: 324.

426 Mechanical Systems Design (2 cr) S (125 lab)

Individual or team development and design of a system, including its economic aspects; final report to include each student's computations and drawings. One 3-hr lab and 3 hrs of indep work per wk. Prereq: 425, CE 382.

432 Energy Conversion Systems (3 cr) S (131-132)

Systems for production of power from fossil and nuclear fuels, hydroelectric plants, and direct energy conversion. Prereq: 322, CE 382.

437 Experimental Techniques (3 cr) F (137)

Design of experiments; instrumentation and controls, desired accuracy, and interpretations of results and their relation to theory; all fields of mechanical engineering covered. One lec, one 3-hr lab, and 3 hrs outside prep per wk. Prereq: 322.

438 Experimental Projects Laboratory (2 cr) S (138)

Individual or team design and execution of a lab investigation in any area of me-

chanical engineering; final report by each student. One 3-hr lab and 3 hrs indep investigation per wk. Prereq: 437.

- 441 Thermal Systems Design (3 cr) F (141)**
Design of integrated thermal system such as power plant; student functions as project design engineer; emphasis on economics, influence on design of variable output, construction, operation, maintenance. Prereq: 422, CE 382.
- 444 Environmental Engineering (3 cr) S (144)**
Phenomena and problems associated with man's environment — air conditioning, refrigeration, solar heating, thermoelectric cooling, air pollution; means for controlling environment. Prereq: 322.
- 445 Heat Transfer (3 cr) F (145)**
Transmission by conduction of heat in steady and unsteady states, free and forced convection, radiation; combined effects of conduction, convection, radiation; heat transfer and fluid friction. Prereq: ES 320-321.
- 451 Aerospace Engineering (3 cr) F (251)**
Jet propulsion systems; problems of atmospheric and space travel. Prereq: ES 321.
- 467 Fuels and Lubricants (2 cr) F or S (167)**
Properties and uses; processing, testing, application of fossil, nuclear, jet fuels; theory of lubrication; processing and testing commercial lubricants, their application in industrial practice. One lec and one 3-hr lab per wk. Prereq: 261, ES 321.
- 468 Engineering Acoustics (3 cr) S (168)**
Theory of sound generation; noise measurement and control; noise in buildings; industrial and aircraft noise, underwater sonics; instrumentation techniques — transducers and signal processing for measurement of sound and vibration from various sources. Prereq: perm.
- 472 Mechanical Vibrations (3 cr) S (172)**
Free, forced and transient vibrations with and without damping; multimass and distributed systems; single degree and two degrees of freedom; special techniques; vibration control. Prereq: ES 220, 340, Math 310.
- 473 Applied Stress Analysis (3 cr) F or S (173)**
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 3-hr lab per wk. Prereq: ES 340.
- 491 Seminar (0 cr) F & S (140)**
One 3-6 day field trip. Prereq: sr standing.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 501 Seminar (1 cr, max 2) F & S (201-202)**
Engineering and engineering-related topics.
- 505 Dynamics (3 cr) F (205)**
Kinematical analysis, dynamic specification of a solid body, basic principles of dynamics; dynamics of rectangular, angular, plane motion; dynamics in three dimensions; beams. Prereq: ES 220, Math 310, or perm.
- 506 Photoelasticity (3 cr) F (206)**
Mathematical approach; optical bench, its parts and their functions; analysis of specimens of various materials in two and three dimensions. Two lec and one 3-hr lab per wk. Prereq: 473, Math 310, or perm.

- 507 Machine Design (3 cr) F (207)**
Topics to meet needs and interests of students; special projects. Prereq: 425 or perm.
- R508 Strength of Materials (3 cr) F or S (R208)**
Stress and strain in tension, compression, torsion; bending on elastic foundation; combined stress, curved bars, plates, elementary photoelasticity. Prereq: perm.
- 510 Hydrodynamics (3 cr) S (210)**
Incompressible flow treated from idealized or inviscid viewpoint; use of complex functions to solve fluid fields. Prereq: ES 320-321 or perm.
- 511 Boundary Layer Theory and Convection (3 cr) F (211)**
Various exact and approximate solutions of fundamental differential equations of heat and mass transfer. Prereq: 445 or perm.
- 512 Gas Dynamics (3 cr) S (212)**
Similarity rules of high-speed flow, bodies of revolution, slender body theory, transonic and supersonic flow, concepts of gas kinetics. Prereq: 423 or perm.
- R515 Transport Phenomena (3 cr) F or S (R215)**
Momentum, heat, mass transfer in three dimensions, including unsteady state; pertinent vector equations derived; methods of solution developed. Prereq: perm.
- 524 Thermodynamics (3 cr) S (224)**
Review of classical thermodynamics; statistical thermodynamics and application to modern energy conversion methods; kinetic theory of gases, transport phenomena, basic quantum mechanics, magnetohydrodynamics, thermionic emission, thermoelectricity. Prereq: 422 or perm.
- R527 Advanced Fluid Mechanics (3 cr) F or S (R227)**
Application of fundamentals of fluid flow; flow through process equipment; problems such as flow of compressible fluids, two-phase flow, non-Newtonian behavior of particle and plastic systems, fluidized beds, particle dynamics. Prereq: perm.
- 550 Vibration Engineering (3 cr) S (250)**
Analysis of vibrating systems; those with several degrees of freedom, branched systems, closed systems, applications of energy method; vibration measurement and control. Prereq: 472 or perm.
- 553 Conduction and Radiation (3 cr) F or S (253)**
Analytical study of thermal conduction and radiation; research instrumentation and equipment. Prereq: 445 or perm.
- R554 Advanced Heat Transfer (3 cr) F or S (254)**
Analytical study of thermal convection; integral methods. Prereq: 445 or equiv. and perm.
- 560 Directed Study (1-3 cr, max 6) F & S**
Supervised study, including critical reading of current literature. Primarily for advanced graduate students. Prereq: perm of dept.
- 563 Theory of Lubrication (3 cr) F or S**
Properties and laws of flow of lubricants; contact modes and friction; characteristics and design of journal, thrust, gas-lubricated bearings; lubrication practice. Prereq: 425, ES 320, or perm.

R565 Theory of Elasticity (3 cr) F or S (R220)

General equations of stress, strain, equilibrium, compatibility in two and three dimensions; two dimensional problems in rectangular and polar coordinates; torsion of shafts of non-circular sections. Prereq: perm.

METALLURGY (Met)

J. R. Hoskins (Head, Mining Engineering and Metallurgy). Professors Clifton, Newton; Assistant Professor Bobeck.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

102 Materials and Their Manufacture (1 cr) S (10)

Introduction 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.

201 Elements of Materials Science (2 cr) F & S (53)

Principles relating properties and behavior of metals, ceramics, polymers, and composites to their structures and environments. Prereq: Chem 103 or 111 or 114.

203 Metallography (1 cr) S (56)

Lab preparation of metal specimens for microscopic examination; hardness testing. One 3-hr lab per wk. Prereq: 201.

305 Elements of Crystallography (2 cr) F (117)

Includes an introduction to crystal chemistry and physics. Prereq: Chem 103 or 111 or 114, Phys 211.

308 Introduction to Metallurgical Thermodynamics (2 cr) S (118)

Aspects of thermodynamics most used in metallurgy; applications to problems. Prereq: Chem 305, ES 321.

401 Ore Dressing (3 cr) F (111)

Alt/ys 1969-70. Processes: crushing and grinding, screening, classification, gravity concentration, flotation, magnetic and electrostatic concentration, and flowsheets. Two 1-day field trips. Prereq: Chem 103 or 111, Phys 113-114 or 210-211 (may be taken with Phys 114 or 211).

403 Introductory Production Metallurgy (3 cr) F (127)

Alt/ys 1970-71. Extraction and refining of ferrous and non-ferrous metals. Prereq: Chem 103 or 111 or 114, Phys 210-211.

410 Metallurgical Laboratory (2 cr) S (130)

Ore dressing, sampling, hydrometallurgy, electrometallurgy, high-temperature metallurgy, fire assaying for gold and silver. Two 3-hr labs per wk. Prereq: 401, 403.

412 Mechanical Metallurgy (2 cr) S (142)

Alt/ys 1970-71. Mechanical forming and testing of metals. One 1-day field trip. Prereq: 203, ES 340.

413 Physical Metallurgy (3 cr) F (145)

Theory, structure and properties of metals and alloys; their relation to industrial problems. Two lec and one 3-hr lab per wk. Prereq: 203 and 308.

- 414 Materials Engineering (2 cr) S (151)**
Alt/yr 1969-70. Selection of materials; manufacturing processes; industrial practices. Prereq: 201, ES 340.
- 417 X-Ray Diffraction (3 cr) F (151)**
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 211.
- WS418 Polymeric Materials (3 cr) S**
WSU 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 or physical science.
- WS420 Chemical Properties (3 cr) S**
WSU 418. Thermodynamics and kinetics of heterogenous chemical reactions at metallic surfaces; oxidation and other gas-metal reactions; electrolysis; corrosion. Prereq: perm.
- 421 Ceramic Materials (3 cr) F (161)**
Properties and uses; cermets and related materials. Prereq: Phys 113-114 or 210-211. Chem 103 or 111 or 114.
- 422 Ceramics Laboratory (2 cr) S (162)**
Ceramic fabrication; PCE and DTA determinations. Two 3-hr labs per wk. Prereq: 421.
- 423 Special Topics (1-6 cr, max 12) F & S (155-156)**
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|-----------------------|--------------------------|---------------------------|
| (a) Ore Dressing | (f) Metallurgical Design | (k) Chemical Metallurgy |
| (b) Pyrometallurgy | (g) Metallography | (l) Casting |
| (c) Hydrometallurgy | (h) Physical Metallurgy | (m) Fabrication |
| (d) Electrometallurgy | (i) X-rays | (n) Ceramics |
| (e) Corrosion | (j) Powder Metallurgy | (o) Mechanical Metallurgy |
- Individual or group study. Prereq: sr standing or perm.
- 431 Proseminar (1 cr, max 2) F & S (187-188)**
Review of current literature. One 3-day field trip. Prereq: sr standing or perm.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 502 Advanced Ore Dressing (3 cr) F or S (203)**
Theories of comminution flotation and related surface phenomena; electrical and magnetic concentration, process control. Prereq: 403, 410 or perm.
- ID503 Advanced Extractive Metallurgy (3 cr) F (205)**
Topics in the extraction and refining of metals. Prereq: 403 or perm.
- ID507 Advanced Ceramics (3 cr) F (208)**
Alt/yr 1970-71. Theoretical aspects; constitution of green bodies; shrinkage; porosity; sintering; effect of structure on mechanical, electrical and magnetic properties; glasses. Prereq: perm.
- 510 Research Methods (3 cr) S (210)**
Alt/yr 1970-71. Experimental methods and apparatus; planning and evaluation. Two lec and one lab per wk. Prereq: perm.
- 511 Advanced Physical Metallurgy (3 cr) F (211)**
Theory of metals and alloys; application to problems of structure; properties of engineering metals. Prereq: perm.

- 512 Metallurgical Thermodynamics (3 cr) S (212)**
Alt/yr 1969-70. Aspects of thermodynamics most used in metallurgy; application to problems. Prereq: perm.
- 514 Phase Rule and Phase Relations (3 cr) S (214)**
Alt/yr 1970-71. Phase rule, construction and interpretation of phase diagrams; metastable and unstable phase relations. Prereq: perm.
- 515 Seminar (1 cr, max 2) F & S (215-216)**
Review of current literature. One 3-day field trip.
- 517 Kinetics of Metallurgical Reactions (3 cr) F**
Alt/yr 1969-70. Application of absolute rate theory; time and temperature dependence; kinetics of gas-solid reactions; corrosion; diffusion, recrystallization. Prereq: perm.
- 518 Advanced Mechanical Metallurgy (3 cr) S (218)**
Alt/yr 1969-70. Microscopic and macroscopic theories of deformation; material-forming processes; mechanical tests. Prereq: perm.
- 520 Nucleation in Solids (3 cr) S**
Alt/yr 1970-71. Theories of Volmer-Weber and Becker-Doring; application to solid-state nucleation; relation to solid-state transformations. Prereq: perm.
- 522 Surface Reactions of Metals (3 cr) S (222)**
Alt yrs 1969-70. Surface chemistry and physics, illustrative examples from metallurgy. Prereq: perm.
- R525 Physical Chemistry of Metals (3 cr) F or S (R225)**
Thermodynamics, heterogeneous equilibria, electrochemistry, diffusion, kinetics. Prereq: perm.
- R531 Behavior of Engineering Materials (3 cr) F or S (R219)**
Static and dynamic properties; relation of mechanical properties to physical properties and crystal imperfections. Prereq: perm.
- R533 Advanced X-ray Diffraction (3 cr) F or S (R251)**
Principles and applications to advanced problems. Prereq: perm.
- R534 Radiation Effects in Materials (3 cr) F or S (R252)**
Interactions between radiation and solids. Prereq: perm.
- R536 Theoretical Structural Metallurgy (3 cr) F or S (R254)**
Structure of metals and alloys; free electron theory; zone theory; equilibrium; order-disorder; kinetics of phase changes and shear processes. Prereq: perm.
- R538 Corrosion in Metallurgy (3 cr) F or S (R258)**
Corrosion by aqueous media, gases, liquid metals and fused salts. Prereq: physical chemistry, including electrochemistry, or perm.
- R539 Electron Metallography (3 cr) F or S (R253)**
Operation and applications in metallurgy of the electron microscope, microprobe and other instruments applying charged particle optics. Prereq: perm.
- WS541 Anisotropy of Solids (3 cr) F**
WSU 517. Representation of physical properties by tensors and matrices; equilibrium properties; elasticity; thermodynamics of irreversible processes. Prereq: thermodynamics.

WS542 Diffusion in Solids (3 cr) S

Alt/yrs 1969-70. WSU 542. Laws of diffusion, steady-state and non-steady-state solutions for various boundary conditions; diffusion theories and mechanisms; related topics. Prereq: perm.

MILITARY SCIENCE — See Air Force, Army, and Naval ROTC

MINING ENGINEERING (Min)

J. R. Hoskins (Head, Mining Engineering and Metallurgy). Professors Gregory, Hoskins; Assistant Professors Chan, Green.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

201 Elements of Mining (2 cr) F (101)

Primarily for mining, metallurgy and geology students; open to non-majors. Impact of mineral production on modern societies; the search for and exploitation of mineral deposits; pertinent aspects from staking a claim to marketing the mineral product.

210 Geophysical Prospecting I (3 cr) S (161)

Alt/yrs 1969-70. Principles and practical methods; magnetic, electrical, electromagnetic seismic, gravitational, radioactive, and geothermal methods; geophysical well logging. Prereq: physical geology and physics. (CHAN)

301 Mining Engineering I (2 cr) F

Explosives and blasting practices; drilling and rock penetration; methods of mining and tunneling.

304 Explosives (2 cr) F (180)

Drilling and blasting equipment, detonation; use of commercial explosives and detonators; design of blasting rounds (surface and underground); forming metal shapes with explosives; use of shaped charges. One 1-day field trip. Prereq: jr standing or perm. (GREEN)

305 Mine Rescue and Accident Prevention (1 cr) S (115)

Given in cooperation with U.S. Bureau of Mines (rescue car visits the campus for this purpose). One 40-hr wk between semesters. (CHAN)

350 Mineral Economics (3 cr) S

Domestic and foreign sources and production of mineral commodities; domestic economy in relation to mineral production, ore reserve calculation, metal market, and stock exchange; assessment of deposits and mine value in relation to economic factors, metal price and predictions.

371 Mining Engineering II (2 cr) S

Mine water, electric service and compressed air.

372 Mine Ventilation (3 cr) F (113)

Sources, evaluation and dispersal of contaminants; health and explosion hazards, heat stress; methods of dispersal and mitigation; fluid mechanics applied to mine ventilation; hygrometry, resistance of airways; surveys, natural ventilation; fans; ventilation economics; design of systems, equipment; ventilation networks. Two lec and one 3-hr lab per wk. (GREGORY)

- 390 Mine Surveying Summer Camp (3 cr) SS (118)**
 Application of theories and equipment to underground and surface mine surveys; geologic mapping techniques; portion of an underground mine is surveyed. mines in area may be inspected. Accident and health insurance required. Prereq: CE 111 and perm.
- 401 Rock Mechanics I (3 cr) F (128)**
 Behavior of rock masses; stability of underground openings, rock slopes and foundations; practical applications of strength theories, stress-strain measurement, causes of ground failures, methods of stabilization; recent research and developments. One 3-day field trip. Coreq: ES 340 or perm. (CHAN)
- 410 Mine Plant Design (2 cr) S (106)**
 Alt/yrs 1969-70. 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.
- 450 Mine Planning I (3 cr) F (130)**
 Design of surface systems; open cuts, quarries, alluvial, strip mining; slope stability, stripping, earthmoving; applications of operation research techniques; transportation by rail, belt, cable and wheel. One 3-day field trip. Prereq: 301.
- 451 Mine Planning II (3 cr) S (190)**
 Design of underground openings and systems; industrial engineering practices; operations research techniques; equipment selection. One 3-day field trip. Prereq: 301.
- 490 Seminar (1 cr) S (197-198)**
 Current mining problems. Prereq: sr standing or perm. (GREEN)
- 492 Special Topics (1-4 cr, max 8) F & S (150-151)**
 Individual or group study in such fields as mining law, economics and management. Prereq: sr standing or perm.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 502 Rock Mechanics II (3 cr) S (129)**
 Alt/yrs 1970-71. Theories of rupture of elastic and inelastic, brittle materials; mechanism 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.
- 503 Mine Stress Analysis (3 cr) F**
 Alt/yrs 1970-71. Application of techniques in experimental stress analysis for structural design in all phases of the engineering system; photo-elastic modeling and coating; and strain gage techniques; stress patterns in frameworks, rock masses and foundations. One lec and two 3-hr labs per wk. Prereq: ES 340. (CHAN)
- 505 Design of Mine Structures (4 cr) S (288)**
 Alt/yrs 1970-71. 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 502 or 503.
- 510 Mine Plant Design II (3 cr) S (210a)**
 Alt/yrs 1970-71. 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: 201, 410, and ES 340, or perm.
- 513 Mine Ventilation Planning (3 cr) S**
 Alt/yrs 1969-70. 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 3-hr lab per wk. Prereq: perm. (GREGORY)

514 Mine Environmental Analysis (3 cr) F

Alt/yrs 1970-71. 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. (GREGORY)

520 Mining Geophysics II (3 cr) S

Alt/yrs 1969-70. Theory and application of magnetic, electrical, electromagnetic, and radioactive methods of geophysical prospecting for metallic and non-metallic mineral deposits. Two lec and one 3-hr lab per wk; one 3-day field trip. Prereq: 210 or perm.

530 Mining Exploration Techniques (3 cr) F

Alt/yrs 1970-71. 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: 210 or perm.

540 Mine Valuation (3 cr) S (124)

Alt/yrs 1970-71. Mine examination and valuation; sampling methods and calculations; determining present value of a deposit.

560 Mine Management (3 cr) F (207)

Financing, management labor relations, operations and government regulations. Prereq: perm.

561 Mine Industrial Engineering (3 cr) S (208)

Alt/yrs 1969-70. Industrial engineering, operations research and computer programming; application to mining engineering problems. Prereq: perm.

570 Mine Systems Design (3-6 cr) S

Alt/yrs 1969-70. Integration and synthesis of equipment, methods and design; use of latest operation research tools to provide a complete mine plan of operation. Prereq: perm.

571 Two-Phase Pipeline Transportation (3 cr) S

Alt/yrs 1969-70. Fluid-borne transport of mill tailing, crushed ore and mine sludge in pipes; hydraulic and pneumatic transport; critical and limiting conditions. Two lec and one 3-hr lab per wk. Prereq: perm.

573 Haulage Systems Design (3 cr) F (206)

Alt/yrs 1969-70. 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.

592 Special Topics (1-6 cr, max 9) F & S (210-211)

- | | |
|---------------------------------|-----------------------|
| (a) Plant Design | (d) Explosives |
| (b) Development and Exploration | (e) Industry Problems |
| (c) Mining Law | |

Individual or group study. Prereq: perm.

MUSEOLOGY (Museo)

William S. Greever (Head, History). Assistant Professor Burcaw (Director, University Museum)

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

301 Introduction to Museology (3 cr) F (101)

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.

302 Intermediate Museology (3 cr) S (150)

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: 301.

450 Advanced Museology (2 cr, max 4) F & S (175)

Actual museum work, under supervision, suited to the individual needs of the student; some travel may be necessary. Prereq: 302 and perm.



MUSIC (Mus)

Floyd H. Peterson (Head), Professors Bauer, Billingsley, Frykman, Lockery, Logan, Peterson; Associate Professors Bray, Walton; Assistant Professors Hahn, Klimko, Seiler, D. Tyler; Instructors Probasco, Spevacek; Artist-in-Residence: P. Tyler.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

GENERAL INFORMATION: For the undergraduate programs in music and music education, and general information and regulations of the Department of Music, see "Music and Music Education" with the curricula of the College of Letters and Science.

HUMANITIES COURSES IN MUSIC: Mus 125-126, Survey of Music, and Mus 321-322, Music in Western Civilization. Other undergraduate music courses qualifying as humanities credit: Mus 127, 128, 129, 143-144, 243-244, 343-344, 410, 411.

APPLIED MUSIC FEES: \$30.00 for one ½-hour lesson (2 cr) per week for a semester; \$60.00 for two ½-hour lessons (4 cr) per week for a semester. Fees and credits differ during summer session. Consult the departmental office for regulations covering applied music.

ORGANIZED MUSIC: Mus 103-109 and 303-309 may be repeated for credit, subject to the general limitation that for all baccalaureate degrees other than the Bachelor of Music, only the first 8 credits in any combination of these courses may be counted toward graduation.

SUMMER MUSIC CAMP COURSES: See page 266

101 Applied Music (2-4 cr, max arr) F & S (30)

- | | | | |
|-----------------|-----------------|-----------------|----------------|
| (a) Voice | (f) Violin | (k) Clarinet | (p) Trumpet |
| (b) Piano | (g) Viola | (l) Saxophone | (q) Trombone |
| (c) Organ | (h) Cello | (m) Oboe | (r) Baritone |
| (d) Harpsichord | (i) String Bass | (n) Bassoon | (s) Tuba |
| (e) Harp | (j) Flute | (o) French Horn | (t) Percussion |

Individual instruction in musical performance. Special fee courses. Consult the Department of Music for proficiency requirements for admission to the various levels (101, 301, 401, 501). Each subtitle may be repeated for credit. Prereq: perm of dept.

103 Concert Choir (1 cr, max arr) F & S (35)

Organized music. 5 rehearsals per wk. Prereq: audition and perm.

104 University Singers (1 cr, max arr) F & S (36)

Organized music. 2 rehearsals per wk. Prereq: perm.

105 University Symphony Orchestra (1 cr, max arr) F & S (37)

Organized music. 3 rehearsals per wk, including one evening rehearsal. Prereq: perm.

106 University Bands (1 cr, max arr) F & S (38)

Organized music. 3-5 rehearsals per wk. Prereq: perm.

107 Musical Pageantry (1 cr, max arr) F (38a)

Organized music. Special registration for certain members of the marching band performing functions not involving the playing of instruments. 3-5 rehearsals per wk. Prereq: perm.

- 108 Festival Chamber Orchestra (1 cr, max arr) SS (39)**
Organized music. Daily rehearsals. Prereq: perm.
- 109 Festival Choir (1 cr, max arr) SS (40)**
Organized music. Daily rehearsals. Prereq: perm.
- 120 Fundamentals of Music (2 cr) F & S (3)**
For students in fields other than music. Not open to students who have taken 121 or 141. Max 8 cr in any combination of 120, 121-122, 141-142.
- 121-122 Elements of Music Theory (4 cr) F-S (1-2)**
For minors and students majoring in fields other than music. Singing, playing, dictation, writing of scales, intervals, chords, progressions. Not open for credit to students who have taken 141-142. Max 8 cr in any combination of 120, 121-122, 141-142. 5 lec per wk. 121 for 122.
- 125-126 Survey of Music (2 cr) F & S (5-6)**
For minors and students majoring in fields other than music. Historical periods and styles. Not open for credit to students who have taken 143-144. These courses may be taken in either order; students may enroll in 126 without having had 125.
- 127 Introduction to Symphonic Music (2 cr) F or S (8a)**
Primarily for students in fields other than music. Masterworks of symphonic literature.
- 128 Introduction to Opera (2 cr) F or S (8b)**
Primarily for students in fields other than music. Masterworks of operatic literature.
- 129 Introduction to Chamber Music (2 cr) F or S (8c)**
Primarily for students in fields other than music. Masterworks of chamber music literature.
- 140 Convocation (0 cr) F & S (14)**
For majors. Attendance at designated musical events.
- 141-142 Theory of Music I (4 cr) F-S (9-10)**
Primarily for majors. Ear-training, sight-singing, written exercises based on melody and counterpoint from Gregorian chant through Palestrina. Max 8 cr in any combination of 120, 121-122, 141-142. 5 lec per wk. Coreq: 143-144.
- 143-144 History of Music I (2 cr) F-S (11-12)**
Primarily for majors. Medieval period through Renaissance. 3 lec per wk. Coreq: 141-142.
- 145-146 Piano Class (2 cr) F-S (23-24)**
Prereq: perm of dept.
- 147-148 Voice Class (2 cr) F-S (19-20)**
Prereq: perm of dept.
- 149 Rudiments of Music (3 cr, max 6) SS (42)**
Flexible content to meet the needs of students. Prereq: perm.
- 241-242 Theory of Music II (4 cr) F-S (75-76)**
Primarily for majors. Counterpoint, harmony, forms of the baroque, classic, romantic periods. 5 lec per wk. Prereq: 141-142; coreq: 243-244.
- 243-244 History of Music II (2 cr) F-S (79-80)**
Primarily for majors. Baroque through romantic period of 19th century. 3 lec per wk. Prereq: 143-144; coreq: 241-242.

250 Instrumental Techniques (1 cr, max 12) F & S (15)

- | | | | |
|-----------------|---------------|-----------------|----------------|
| (a) Violin | (e) Flute | (h) Oboe | (k) Trumpet |
| (b) Viola | (f) Clarinet | (i) Bassoon | (l) Trombone |
| (c) Cello | (g) Saxophone | (j) French Horn | (m) Percussion |
| (d) String Bass | | | |

Group instruction. Problems in playing and teaching instruments in elementary and secondary schools. Each subtitle may be repeated for credit. Prereq: perm.

265 Chamber Ensemble (1 cr, max arr) F & S (67)

- | | |
|-----------------------|----------------|
| (a) Vocal | (e) Woodwind |
| (b) Keyboard | (f) Brass |
| (c) Collegium Musicum | (g) Percussion |
| (d) String | (h) Jazz |

Normally offered under the main title only during summer session. Max 4 cr each area. Prereq: perm.

280 Opera Workshop (1 cr, max 4) F & S (68)

Analysis, rehearsal, performance of operatic literature. Prereq: perm.

283-284 Diction for Singers (2 cr) F-S (59-60)

283: German. 284: French.

295 Independent Study (1-4 cr, max 15) F & S (90)

- | | |
|-----------------------------|-------------------------|
| (a) Music Literature | (d) Diction for Singers |
| (b) Music Theory | (e) Accompanying |
| (c) Instrumental Techniques | (f) Composition |

Each subtitle may be repeated for credit. Prereq: perm of dept.

301 Applied Music (2-4 cr, max arr) F & S (130)

See 101 for description and subtitles. Prereq: perm of dept.

303 Concert Choir (1 cr, max arr) F & S (135)

See 103 for description. Prereq: 4 cr in choral group and perm.

304 University Singers (1 cr, max arr) F & S (136)

See 104 for description. Prereq: 4 cr in choral group and perm.

305 University Symphony Orchestra (1 cr, max arr) F & S (137)

See 105 for description. Prereq: 4 cr in instrumental group and perm.

306 University Bands (1 cr, max arr) F & S (138)

See 106 for description. Prereq: 4 cr in instrumental group and perm.

308 Festival Chamber Orchestra (1 cr, max arr) SS (139)

See 108 for description. Prereq: 4 cr in instrumental group and perm.

309 Festival Choir (1 cr, max arr) SS (140)

See 109 for description. Prereq: 4 cr in choral group and perm.

321-322 Music in Western Civilization (3 cr) F-S (123-124)

Primarily for minors and students majoring in fields other than music. 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.

341-342 Theory of Music III (3 cr) F-S (103-104)

Primarily for majors. Techniques of the late 19th and 20th centuries. Prereq: 241-242; coreq: 343-344.

- 343-344 History of Music III (2 cr) F-S (101-102)**
Primarily for majors. History and aesthetics of the late 19th and 20th centuries. 3 lec per wk. Prereq: 243-244; coreq: 341-342.
- 345 Theory Review (3 cr) SS (77)**
Primarily for advanced-degree candidates. Summary of subject-matter covered in 141-142, 241-242, 341-342.
- 365 Chamber Ensemble (1 cr, max arr) F & S (167)**
See 265 for subtitles. Normally offered under main title only during summer session. Max 4 cr each area. Prereq: 2 cr in 265 or upper-div standing in applied music.
- 381 Elementary School Music Methods (2 cr) F & S (171)**
Also offered as Ed 381. Methods and materials of teaching general classroom music. Prereq: 120 or basic music skills.
- 385 Choral Music Education (2 cr) F or S (172)**
Methods and materials of teaching choral music in secondary schools. Prereq: 122 or 142.
- 386 Instrumental Music Education (2 cr) F or S (173)**
Methods and materials of teaching instrumental music in secondary schools. Prereq: 122 or 142.
- 387-388 Conducting (2 cr) F-S (179-180)**
Baton Techniques, score reading, problems of conductor of large choral and instrumental organizations. Prereq: 122 or 142.
- 401 Applied Music (2-4 cr, max arr) F & S (130)**
Primarily for graduate students not concentrating in musical performance. See 101 for description and subtitles. Prereq: perm of dept.
- 410 Historical Survey of Jazz (2 cr) F or S (120)**
Origins, sources, evolution, styles, and performers of jazz music.
- 411 Period Studies (2 cr) F & S (160)**
(a) Middle Ages (d) Preclassic (g) Late 19th Century
(b) Renaissance (e) Classic (h) 20th Century
(c) Baroque (f) Romantic
Prereq: perm.
- 420 Modal Counterpoint (2-4 cr) F or S (105)**
Prereq: 242.
- 421 Tonal Counterpoint (2-4 cr) F or S (106)**
Prereq: 242.
- 423-424 Composition (2-4 cr) F-S (109-110)**
Emphasis on techniques of the 20th century. Prereq: 242.
- 427 Orchestration (2-4 cr) F or S (112)**
Range, tone color, and uses of orchestral instruments; scoring for ensembles and symphony orchestra. Prereq: 242.
- 429 Theoretical Basis of Jazz (2 cr) F or S (122)**
Harmonic, melodic, rhythmic, and stylistic analysis of principal trends. Prereq: perm.
- 431-432 Piano Literature (2 cr) F-S (113-114)**
Baroque through contemporary period. Prereq: perm.

- 433 Piano Pedagogy (2 cr) F or S (115)**
Methods and materials of teaching piano. Prereq: perm.
- 435 Solo Vocal Literature (2 cr) F or S (117)**
Baroque through contemporary period. Prereq: perm.
- 437 Vocal Pedagogy (2 cr) F or S (119)**
Methods and materials of teaching voice. Prereq: perm.
- 441 String Pedagogy (2 cr) F or S (116)**
Methods and materials of teaching stringed instruments. Prereq: perm.
- 461 Band Arranging (2-4 cr) F or S (111)**
Scoring for wind instruments; range, transposition, tone color. Prereq: 242.
- 463 Instrumental Techniques (1-3 cr, max 6) F & S (174)**
Group instruction. Problems involved in the playing and teaching of instruments in elementary and secondary schools. Prereq: perm.
- 464 Workshop (1-4 cr) SS (176)**
- | | |
|-----------------------------|---------------------------------------|
| (a) Piano | (h) Band |
| (b) Voice | (i) Marching Band |
| (c) Stringed Instruments | (j) Orchestra |
| (d) Woodwind Instruments | (k) Chorus |
| (e) Brass Instruments | (l) Instrumental Techniques |
| (f) Percussion | (m) Instrument Maintenance and Repair |
| (g) Elementary School Music | |
- Primarily for teachers. Consult the summer bulletin for length and special emphasis of each workshop when offered. Prereq: perm.
- 466 Marching Band Techniques (1 cr) F (177)**
Techniques of drilling; materials for field and street maneuvers; preparation of shows. Prereq: 242.
- 467 Literature for Instrumental Ensembles (2 cr) F or S (182a)**
Chamber music materials suitable for use in schools.
- 468 Literature for Vocal Ensembles (2 cr) F or S (182b)**
Chamber music materials suitable for use in schools.
- 470 School Orchestra Problems (2 cr) F or S (186)**
Emphasis on assisting school band directors establish orchestra programs.
- 480 Opera Workshop (1-3 cr, max 8) F & S (168)**
See 280 for description. Prereq: 2 cr in 280 or perm.
- 495 Independent Study (1-4 cr, max 15) F & S (190)**
- | | |
|------------------------------|----------------------------------|
| (a) Music History | (l) Keyboard Literature |
| (b) Interpretation Practices | (m) Vocal Literature |
| (c) Contemporary Music | (n) String Literature |
| (d) Musical Structure | (o) Wind Literature |
| (e) Music Theory | (p) Piano Pedagogy |
| (f) Counterpoint | (q) Vocal Pedagogy |
| (g) Composition | (r) Elementary School Music |
| (h) Orchestration | (s) Choral Music Education |
| (i) Band Arranging | (t) Instrumental Music Education |
| (j) Choral Arranging | (u) Instrumental Techniques |
| (k) Conducting | (v) General Music Education |
- Each subtitle may be repeated for credit. Prereq: perm of dept.

- 498 Proseminar (2 cr) F & S (193)**
Prereq: perm.
- 499 Senior Recital (0 cr) F & S (199)**
Prereq: perm of dept.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
Written thesis or original composition in music.
- 501 Applied Music (2-4 cr, max arr) F & S (230)**
For majors concentrating in musical performance for the master's degree. See 101 for description and subtitles. Prereq: perm of dept.
- 511 Introduction to Musical Scholarship (2 cr) F (200)**
Orientation to graduate study; bibliography and research procedures.
- 513-514 Seminar (1-4 cr) F-S**
- | | |
|-------------------|--------------------|
| (a) Music History | (d) Music Teaching |
| (b) Music Theory | (e) Conducting |
| (c) Composition | |
- Consult the time schedule for seminars currently offered and the credit permitted in each. Prereq: perm.
- 521 Musical Analysis (3 cr, max 6) F & S (207)**
Analysis of selected musical compositions. Prereq: perm.
- 523-524 Counterpoint (2 cr) F-S (205-206)**
Advanced contrapuntal writing, including canon and fugue. Prereq: 421.
- 527 Advanced Orchestration (2-4 cr) F or S (212)**
Orchestral scoring; recent trends. Prereq: 427.
- 562 Choral Literature and Techniques (2 cr) F or S (262)**
Prereq: 385, 387, or perm.
- 563 Orchestral Literature and Techniques (2 cr) F or S (263)**
Prereq: 386, 387, or perm.
- 564 Band Literature and Techniques (2 cr) F or S (264)**
Prereq: 386, 387, or perm.
- 565 Chamber Ensemble (1 cr, max 3) F & S (267)**
See 265 for description and subtitles. Each subtitle may be repeated for credit. Normally offered under the main title only during summer session. Prereq: perm.
- 581 College Music Teaching (3 cr, max 6) F & S (287-288)**
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.
- 583 School Music Administration (2 cr) F or S (274)**
Principles underlying sound policies in the supervision and administration of school music. Prereq: one yr of teaching experience or perm.
- 595 Independent Study (1-4 cr, max 9) F & S (290)**
- | | |
|---------------------------|---------------------------------|
| (a) Music History | (g) Choral Literature |
| (b) Music Theory | (h) Orchestral Literature |
| (c) Counterpoint | (i) Band Literature |
| (d) Orchestration | (j) School Music Administration |
| (e) Composition | (k) Music Education |
| (f) Performance Practices | |
- Each subtitle may be repeated for credit. Prereq: perm of dept.

SPECIAL COURSES FOR HIGH SCHOOL SUMMER MUSIC CAMP

11 Musicianship (0 cr) SS (07)	36 Organ (0 cr) SS (015)
21 Band (0 cr) SS (01)	41 Voice (0 cr) SS (011)
23 Chorus (0 cr) SS (02)	43 Violin or Viola (0 cr) SS (012)
25 Orchestra (0 cr) SS (03)	45 Cello or String Bass (0 cr) SS (013)
27 Stage Band (0 cr) SS (016)	51 Woodwind Instruments (0 cr) SS (014)
29 Opera Workshop (0 cr) SS (04)	61 Brass Instruments (0 cr) SS (014)
35 Piano (0 cr) SS (010)	71 Percussion (0 cr) SS (014)

NAVAL ROTC (Navy)

Jack R. Voorhees (Head). Professor: Capt. Voorhees (USN); Associate Professor Cdr. Elliott (USN); Assistant Professors: Lt. Haskell (USNR), Maj. Trader (USMC) Lt. Walkup (USN), Lt. Conder (USNR), Lt. Holick (USN).

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

101 Naval Organization and Management (3 cr) F

Practices and concepts; lines of command and control, organization for logistics, service and support, functions and services of major components of the Navy and Marine Corps, shipboard organization. Three lec and one lab per wk; one 5-day field trip.

102 Introduction to Naval Ships Systems (3 cr) S

Types, structure, purpose of naval ships; compartmentation propulsion systems, auxiliary power systems, interior communications, ship control; ship design for safe operations; ship stability. Three lec and one lab per wk; one 5-day field trip.

201-202 Seapower and Maritime Affairs (1 cr) F-S

National and international naval and merchant marine affairs as reflected in current events and history; importance today; future role. One lec and one lab per wk; one 5-day field trip.

301-302 Navigation and Operations I-II (3 cr) F-S (132, 141)

301: theory, principles, procedures of terrestrial and celestial navigation; time, 302: practice of navigation, naval operations and tactics. Three lec and two labs per wk; one 5-day field trip. Prereq: 301 for 302.

311 Evolution of the Art of War (3 cr) F (133)

Alt.yrs 1969-70. Evolution of warfare from earliest recorded time to present; history of weapons, equipment, tactics and principles of war and their inter-relationship. Three lec and one lab per wk; one 5-day field trip.

312 Basic Strategy and Tactics (3 cr) S (134)

Alt.yrs 1969-70. Theoretical principles behind modern strategy and tactics; their relationship to U. S. military and foreign policy; organization of USMC, tactics, map reading and leadership. Three lec and one lab per wk; one 5-day field trip.

401-402-403 Naval Weapons I-II-III (3 cr) F-S

401: weapons systems and systems approach; linear analysis of ballistics and weapons; dynamics of basic components. 402: weapons control; components propulsion systems, trajectories and damage criteria; effectiveness and kill probability. 403: content of 402 scaled for students not having technical requirements. Three lec and one lab per wk; one 5-day field trip. Prereq: 401, calculus and physics for 402; 401 for 403.

404-405 Naval Leadership (1 cr) F-S

Seminar in the problems of leadership; case studies and situations encountered in group control.

411-412 Amphibious Warfare I-II (3 cr) F-S (143-144)

Alt/yrs 1970-71. 411: history; role of USMC; recent wars; Marine Corps administration. 412: doctrinal techniques and concepts; military justice and courts-martial; Marine Corps leadership. Three lec and one lab per wk; one 5-day field trip.

431 Naval Engineering (1-3 cr) F (131)

Mechanics, thermodynamics, electrical and nuclear engineering as applied to internal combustion engines and shipboard propulsion plants; design, construction, stability of naval ships. Three lec and one lab per wk; one 5-day field trip.

442 Principles of Naval Leadership and Administration (3 cr) S (142)

Human relations and personnel management related to responsibilities of naval officers; military justice and courts-martial. Three lec and one lab per wk; one 5-day field trip.

451 Navy Flight Indoctrination Program (0 cr) F & S (151)

Includes 30 hrs of ground school and approximately 36 hrs of flying time (20 hrs dual; 16 hrs solo); students receive FAA pilot's licenses upon successful completion of written examination and flight checks. Prereq: perm of dept.

NUCLEAR ENGINEERING (NE)

William P. Barnes (Chairman), Professors Barnes, Hoffman, Rathbone; Assistant Professors Hagen, Dixon; Assistant Professor Avery.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

Nuclear Engineering is one of the subject-matter fields within the College of Engineering.

RELATED FIELDS: For other courses offered in the nuclear field, see Chem 416, Chem 513, Phys 465, and Phys WS565.

323 Introduction to Nuclear Engineering (2 cr) F & S (123)

For students in all fields. Nuclear and atomic physics, elementary reactor principles, materials, chemical processes, reactor types. Prereq: jr standing or perm.

370 Radiation Safety and Protection (2 cr) F or S (170)

Alt yrs 1969-70. Interaction of radiation with matter, especially living matter; radiology, measurement, shielding and radiation protection. Prereq: jr standing.

380 Fallout Shelter Analysis (2 cr) F or S (180)

Primarily for practicing engineers and architects. Determination of radiological protection of buildings when subjected to nuclear fallout. Prereq: perm.

460 Nuclear Reactor Design (3 cr) F or S (160)

Nuclear reactor design problems in thermodynamics, fluid flow, heat transfer; reactor theory, shielding, control, materials, safety, as they affect engineering analysis. Prereq: 323 or perm.

461 Nuclear Reactor Laboratory (1-2 cr) F or S (161)

Use of subcritical reactor for experiments on diffusion length, Fermi age, thermal

utilization, buckling; use of alpha, beta, gamma and neutron detectors and counters. One or two 3-hr labs per wk. Coreq: 323 or perm.

472 Reactor Control Systems (3 cr) F or S

Alt yrs 1970-71. Reactor kinetics, model development, reactivity feedback effects, control techniques, simulation studies. Prereq: 323, EE 300 or equiv.

473 Nuclear Instrumentation (3 cr) F or S (173)

Alt yrs 1970-71. Radiation detection instruments and associated circuitry as applied to nuclear engineering. Prereq: EE 314 or equiv.

500 Master's Research and Thesis (cr arr) F & S (300)

R550 Topics in Advanced Nuclear Engineering (3 cr) F or S (R250)

Prereq: perm.

554 Nuclear Reactor Theory (3 cr) F or S

Alt/yrs 1969-70. Interaction, diffusion and absorption of neutrons, Fermi theory, reactor kinetics, group diffusion methods, as applied to bare and reflected reactors. Prereq: perm.

WS556 Experimental Reactor Techniques (2 cr) S (256)

WSU ChE 516. Special experiments using the subcritical reactor, WSU TRIGA critical reactor, probes, detectors, counters. Prereq: perm.

ID561 Advanced Nuclear Engineering (3 cr) F or S (261)

Fuel preparation and configuration, materials, fluid flow, heat removal, product separation, reactor theory, control, waste treatment, safety, economics. Prereq: perm.

R565 Reactor Engineering (3 cr) F & S (R265)

Radiation shielding, materials, instrumentation and controls, separation of stable isotopes, chemical separation and processing, special techniques. Prereq: Phys R566 or perm.

566 Directed Study (1-3, max 6) F & S

Primarily for advanced graduate students. Supervised study on a specialized aspect of nuclear engineering. Prereq: perm of nuclear committee.

OFFICE ADMINISTRATION (OAd)

Robert M. Kessel (Head). Professor Kessel; Associate Professor Anderson; Assistant Professor Dacres.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

101-102-103 Typewriting I-II-III (2 cr) F & S (1-2-3)

101: development of skill sufficient for personal use. 102: speed and control to occupational competency levels. 103: occupational competence, including correspondence, manuscripts, legal documents, and other special problems. Students with one year of previous typewriting instruction may not take 101 for credit.

115-116 Shorthand I-II (4 cr) F-S (15-16)

115: theory of Gregg shorthand simplified. 116: dictation and introduction to transcription. Students with one year previous Gregg shorthand instruction may not take 115 for credit. Credit is not given in 115 until 116 is completed.

185 Office Machines (2 cr) F & S (85)

Operation of commonly used office adding-calculating machines.

271-272 Shorthand III-IV (3 cr) F-S (71-72)

271: speed development. 272: transcription skill to occupational competency levels. Prereq: perm.

395-396 Secretarial Procedures (3 cr) F & S (195-196)

395: filing systems; operation of transcribing and duplicating machines; secretarial duties, responsibilities and procedures. 396: office experience with related seminars; secretarial administration; advanced dictation and transcription. Prereq: perm.

PHILOSOPHY (Phil)

Francis Seaman (Chairman). Associate Professor Seaman; Instructor Roberts.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

101 Introduction to Philosophy: Types of Philosophy (3 cr) F & S (1)

Chief types of philosophic thought through a study of their more distinguished representatives: Plato, Lucretius, DesCartes, Berkeley, and James. Not open to students who have taken 103. (SEAMAN)

103 Introduction to Philosophy: Principles and Problems (3 cr) F & S (3)

Nature of philosophy through a consideration of certain key philosophic questions reflecting student interest; explored by methods appropriate to their solution. Not open to students who have taken 101. (ROBERTS)

111 Introduction to the Philosophy of Religion (2 cr) F & S (11)

Main points of view. (SEAMAN)

201 Ethics (3 cr) F & S (61)

Development of ethical thought. Prereq: 101 or 103 or soph standing. (ROBERTS, SEAMAN)

211 Logic (3 cr) F (71)

Methods of reasoning; function of logic in the methods of science. Prereq: 101 or 103 or soph standing.

303 Advanced Logic (3 cr) S (103)

Ideas and techniques of contemporary logic. (ROBERTS)

305 Philosophy of Religion (3 cr) F (105)

Current dialogue between the religious and the secular.

309 History of Ancient Philosophy (3 cr) F (109)

Philosophic and political thought from the early Greeks through the Middle Ages. (ROBERTS)

310 History of Modern Philosophy (3 cr) S (110)

Philosophic and political thought from DesCartes through Kant. (ROBERTS)

314 Ethical Theory (3 cr) F or S (114)

Prereq: 201 or perm. (ROBERTS)

315-316 Contemporary Philosophy (3 cr) F-S (115-116)

Movements of the 20th century. (ROBERTS)

- 322 Philosophical Ideas in Recent Literature (3 cr) S (122)**
Ethical, social, political trends; Nietzsche, Stein, Sartre, Maugham, Joyce, Hardy.
(SEAMAN)
- 332 Philosophy of Mind (3 cr) S (132)**
Recent discussions of the concept of mind, action, emotion, private language;
identity theory. (SEAMAN)
- 411 Philosophy of the Social Sciences (3 cr) F or S (111)**
Concepts and methods of the social sciences.
- 412 Philosophy of Science (3 cr) F (112)**
Basic concepts of modern science. (SEAMAN)
- 413 Esthetics (3 cr) S (113)**
Leading philosophies of art. Prereq: jr standing. (SEAMAN)
- 425 American Philosophy (3 cr) F or S (125)**
Philosophical ideas of the U. S.; emphasis on period since 1875.
- 491-492 Proseminar (3 cr) F-S (191-192)**
Prereq: perm.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 507-508 Seminar (1-4 cr) F-S (207-208)**
(a) History of Philosophy (d) Philosophy of Science
(b) Value Theory (e) Metaphysics
(c) Epistemology
Prereq: perm.
- 509 Directed Readings (1-3 cr, max 10) F & S (209-210)**
(a) History of Philosophy (d) Philosophy of Science
(b) Value Theory (e) Metaphysics
(c) Contemporary Philosophy
Max 6 cr in each subtitle. Prereq: perm.

PHOTOGRAPHY (Photo)

Gordon Law (Head, Communications). Associate Professor Bell (Chairman).

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 281-282 Introduction to Photography (3 cr) F-S (81-82)**
Techniques; development and present-day uses of photography.
- 285 Photography Workshop (2 cr) SS (85)**
Better use of the camera, composition and photographic processing.
- 481-482 Advanced Photography (3 cr) F-S (181-182)**
Applications and advanced techniques. Prereq: 281-282.
- 483-484 Miniature Photography (3 cr) F-S (183-184)**
History; present-day uses and techniques of the miniature camera; practical
application of color. Prereq: 281-282.

PHYSICAL EDUCATION (PE)

Leon G. Green (Head, Department of Health, Physical Education and Recreation), Professors Betts (Chairman for Women), Green (Chairman for Men), Kirkland, Locke, Associate Professor Parberry, Assistant Professors MacFarlane, Marten, Porter, Thompson, Walker, Wolf; Instructors Hall, Lathen, Thomas, Zuroff; Coaches Anderson, Hall, McNease, MacFarlane, Smith, Channing (Trainer).

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

ACTIVITY COURSES: Women—105, 106, 107, 108, or 103; Men—131, 233, or 135; may be repeated for credit if the student engages in a different activity. See general regulation J-2(b) in Part I of this catalog for requirements in health and physical education.

REQUIRED HEALTH AND ACTIVITY COURSES

- 101 Healthful Living—Women (2 cr) F & S (1)**
Project approach to problems of the college woman. Students who pass a standardized health-knowledge test may be exempted from this course.
- 103 Restricted Physical Education—Women (1 cr, max arr) F & S (3)**
Replaces 105-108 when the University physician certifies that the student needs specific activities. 2 hrs. per wk.
- 105 Rhythms—Women (1 cr, max arr) F & S (5)**
Modern and folk dancing; rhythmic expression. 2 hrs per wk.
- 106 Individual and Dual Sports — Women (1 cr, max arr) F & S (6)**
Equitation, bowling, racket sports, fencing, golf, gymnastics and conditioning. 2 hrs per wk.
- 107 Team Sports—Women (1 cr, max arr) F & S (7)**
Field sports, volleyball, basketball, softball. 2 hrs per wk.
- 108 Swimming—Women (1 cr, max arr) F & S (8)**
All levels of proficiency, including senior life-saving and diving. 2 hrs per wk.
- 131 Freshman Physical Education—Men (½ cr, max arr) F-S (35)**
Various sports. 1 hr per wk.
- 135 Restricted Physical Education—Men (½ cr, max arr) F — S (35)**
Replaces 131 and 233 when the University physician certifies that the student needs specific activities. 1 hr per wk.
- 233 Sophomore Physical Education—Men (½ cr, max arr) F & S (33)**
Individual or dual sports. 1 hr per wk.

FUNDAMENTAL SKILL COURSES

- 111 Fundamentals of Movement (2 cr) F or S (11)**
Physical principles, kinesthetic patterns and rhythmic structure involved in fundamental movement activities. One lec and two labs per wk.
- 112 Dance Techniques (1 cr) F or S (12)**
Modern dance, composition and rhythmic analysis. 2 hrs per wk.

- 113 Problems in Dance Composition (1 cr, max 4) F & S (13)**
 Various styles; choreography, movement quality, music, costuming, and staging. 2 hrs per wk. Prereq: 105 or perm.
- 115 Team Sports Backgrounds (2 cr) F & S**
 Field sports, softball, volleyball and basketball. 4 hrs per wk.
- 116-117 Individual Sports Backgrounds I-II (2 cr) F & S**
 116: racket games and golf. 117: bowling, archery, fencing, track and field. 4 hrs per wk.
- 126 Weight Training and Calisthenics (1 cr) F & S**
 Two lec-labs per wk.
- 138 Swimming (1 cr) F & S (38)**
 Advanced swimming and diving. 2 hrs per wk. Prereq: proficiency or perm.
- 139 Gymnastics (2 cr) F or S (39)**
 Teaching techniques and skills of gymnastics. One lec and one 2-hr lab per wk.
- 141 Wrestling (1 cr) F & S (41)**
 Two lec-labs per wk.
- 142 Tumbling, Pyramids and Stunts (2 cr) S (42)**
 Emphasis on skill development and progressions from elementary through high school. One lec and 2 labs per wk.
- 226 Officiating Women's Sports (1 cr) F or S (126)**
 Volleyball and basketball. Prereq: knowledge and skill in these sports.
- 228 Square and Social Dance (1 cr) F & S (28)**
 Social, round and square dance. 2 hrs per wk.
- 237 Archery and Bowling (1 cr) F & S (37)**
 Two hrs per wk. Prereq: perm.
- 240 Tennis and Badminton (1 cr) F & S (40)**
 Two hrs per wk. Prereq: perm.
- 243 Highly Organized Games (2 cr) S (43)**
 Techniques and skills of games of high organization and lead up activities. One lec and two labs per wk.
- 244 Life Saving (1 cr) F & S (44)**
 Students passing the Red Cross tests receive advanced swimmer and life saving certificates. One lec and two labs per wk. Prereq: 138 or perm.

PROFESSIONAL COURSES

- 145 Introduction to Physical Education (2 cr) F (45)**
 Survey; philosophy, aims and objectives.
- C147 History of Physical Education (2 cr) C (C47)**
 Backgrounds and development; trends in various countries; modern trends in the United States.
- 150 General Hygiene (3 cr) F & S (50)**
 Maintaining health; individual and public health.
- 252 Elementary School Physical Education (2 cr) F & S (52)**
 Organization and teaching methods. 3 hrs per wk.

- 254 Camp Leadership (2-3 cr) S (54)**
Objectives, program and philosophy of private, organizational and school camp programs. One 3-4 day field trip.
- 261 Recreational Arts and Crafts (2 cr) F & S (61)**
Handicrafts suitable for playground. Prereq: perm.
- 264 Recreational Music (1 cr) S (64)**
Musical program in recreational and community centers.
- 266 Aquatic Instructor's Course (2 cr) F & S (66)**
Methods. Students passing Red Cross tests will receive instructor's certificates. 3 hrs per wk. Prereq: sr life-saving and 18 yrs old.
- 271 Interpretation of Physical Education, Health and Recreation (3 cr) F (71)**
Importance of these related fields to general education from the Greeks to the present day.
- 288 First Aid (2 cr) F & S (88)**
Emergency care of injuries resulting from accidents or illness; advanced Red Cross first aid card given.
- 316 Elementary School Health Materials (2 cr) F or S (116)**
For elementary classroom teachers.
- 321 Theory and Techniques of Dance (2 cr) F or S (121)**
Teaching modern dance, dance composition and folk dance. 3 hrs per wk.
- 322 Teaching Individual Sports (2 cr) F or S**
Methods for majors and minors.
- 323 Teaching Team Sports (2 cr) F or S (129)**
Methods for majors and minors.
- 329 Leadership in Recreation (2 cr) F (129)**
Organization, planning and conduct of school and community, social, recreation and extra-curricular events.
- 341 Basketball Coaching Methods (2 cr) F (141)**
- 342 Baseball Coaching Methods (2 cr) S (143)**
- 343 Track Coaching Methods (2 cr) S (143)**
- 344 Football Coaching Methods (2 cr) S (144)**
- 348 Athletic Injuries (2 cr) F (148)**
Care, prevention and treatment, training methods.
- C&X371 Principles of Physical Education (3 cr) C & X (C&X171)**
Interpretation of aims and objectives.
- 387 Intramural and Athletic Officiating (3 cr) F or S (187)**
Intramural programs in schools; rules and methods of officiating athletic contests; includes 30 hrs of officiating in the intramural department.
- 418 Physiology of Exercise (3 cr) F & S (118)**
Effects of physical activity on the circulatory, respiratory and other systems. Two lec and one 2-hr lab per wk. Prereq: Zool 118.
- 419 Human Kinesiology (3 cr) F or S (119)**
The body in movement; anatomical and mechanical analysis. Prereq: Zool 127.

- 424 Adaptive and Corrective Physical Education (2 cr) F or S (124)**
Fundamentals of body mechanics; emphasis on development of adaptive and corrective activities.
- 427 Methods and Materials in Physical Education (2 cr) F or S (Ed 127)**
For majors. Practices, problems, program planning and teaching methods.
- 450 Coaching Clinic (1-3 cr) SS (150)**
Alternate summers (offered 1969). Procedures and techniques in coaching high school and college sports. Consult the summer school bulletin for information.
- 467 Physical Education and Recreation for the Handicapped (3 cr) F or S (167)**
Adaption of these programs to the mentally and physically handicapped child.
- 481 Tests and Measurements (3 cr) F (181)**
Testing in physical education. Prereq: Psych 100 or 205 or 206.
- 486 Program Planning for Recreation Centers (3 cr) F or S (186)**
Organization, management, programs and public relations involved in the operation of recreation centers, settlement-housing, military posts and college student unions.
- 494 Community Recreation (3 cr) F or S (194)**
Planning and development of community recreation programs; leadership, facilities, finances, services and public relations.
- 495 Internship in Recreation (9 cr) F & S (195)**
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.
- 496 Organization and Administration (3 cr) S (196)**
Health and physical education programs in the public schools.
- 497 Athletic Problems (3 cr) F & S**
Scheduling, facilities, equipment, maintenance, budgeting and public relations in the school is stressed.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 506 Foundations of Motor Skills (3 cr) F (206)**
Application of physiological, kinesiological and mechanical principles leading to an understanding of motor activity.
- 544 Program Development (3 cr) S (244)**
Physiological, sociological and psychological growth characteristics of the student; principles, problems and procedures.
- 581 Professional Problems (1-6 cr) F & S (281-282)**
Principles of scientific inquiry and their application to the study of physical activity; individual research projects.
- 591 Social Basis of the Profession (3 cr) F & S (291)**
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.
- 592 The School Health Program (3 cr) F or S**
For teachers and administrators. Well-balanced health program; organization

and administration; health services, healthful school living and health instruction.

594 Workshop in Program Construction (1 cr) SS (294)

- (a) Track (c) Gymnastics
(b) Modern Dance (d) Movement Exploration

Theories, principles and methods; practice in skills.

596 Advanced Organization and Administration (3 cr) S (296)

Policies and problems; classification of children, the time schedule, teaching staff, training, load, office organization and administration, state laws, and finances.

597 Seminar (1-3 cr) F & S (297)

Current trends in physical education, health and recreation.

PHYSICS (Phys)

M. E. Browne (Head). Professors Browne, Johnston, Peck, Sieckmann; Associate Professor Kearney; Assistant Professors Baumgardner, Davis, Deutchman, Ingerson, Willmes; Associate Physicist Robinson.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

Students with superior preparation may challenge any undergraduate course in this field. Consult the head of department for information.

101 Fundamentals of Physical Science (4 cr) F & S (15)

Primarily for students in non-scientific fields. General, non-mathematical study of chemistry and physics and their role in contemporary 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. (A good course; you'll like it.)

111 Elementary Physics (3-4 cr) F & S (1)

Survey of classical and modern physics for non-science majors. Not open to students who have taken 113 or 210. Three lec and one 2-hr lab per wk.

113-114 General Physics (3-4 cr) F-S (3-4)

113: mechanics, sound and heat. 114: magnetism, electricity, light and modern physics. 113 is not open to students who have taken 111 or 210; 114 is not open to students who have taken 211. Three lec, one rec, and one 2-hr lab per wk. Prereq: Math 140-141.

R205-R206-R207 Principles of Physics (3 cr) F or S (R5-R6-R7)

205 mechanics. 206: electricity and magnetism. 207: heat, sound and optics. Prereq: Math R181 and perm.

R208-R209 Introduction to Radiological Health Physics (3 cr) F-S (R41-R42)

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.

210-211-212 Engineering Physics I-II-III (3 cr) F & S (53-54-55)

For students in engineering and physical sciences. 210: mechanics and heat. 211: wave motion, sound, electricity and magnetism, and geometrical optics.

212 physical optics and modern physics. Students may not receive credit for 210 if they have credit for 113. Phys 211 is not open to students who have taken 114. Two lec, one rec, and one 2-hr lab per wk. Prereq: high school physics or 111; calculus (prior or concurrently); satisfactory work in previous calculus and physics courses; or perm.

N301 Physics for High School Teachers (3 cr) SS (N103)

Mechanics, heat, sound, light, electricity, and magnetism, modern physics; examples from PSSC materials. Four lec and one 3-hr lab per wk.

N302 Seminar in Experimental Physics (1 cr) SS (N109)

Discussion of high school physics lab experiences, including experiments based on N301 and with PSSC physics.

304 General Astronomy (3 cr) F or S (104)

Descriptive and physical astronomy. Prereq: perm.

307 Sound Waves and Acoustics (3 cr) F or S (133)

Sources of sound, propagation of sound waves through elastic media, and architectural acoustics. Prereq: 114 or 212, Math 200, or perm.

R309 Fundamentals of Radiation Biophysics (3 cr) F or S (R105)

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, related topics. Prereq: perm.

314 Experimental Astronomy (1 cr) F or S (107)

Experimental techniques. One 3-hr lab per wk. Prereq or coreq: 304.

R317 Electronics (3 cr) F or S (R136)

Electron ballistics, vacuum and gaseous tubes. Prereq: perm.

321-322 Analytical Mechanics (3 cr) F-S (121-122)

Statics; kinematics and dynamics of a particle; system of particles; rigid continuous media; introduction to Lagrange's equations. Prereq: 114 or 212, Math 200.

341-342 Electricity and Magnetism (3 cr; 3-4 cr) F-S (131-132)

Theory using vector methods; electrostatics, magnetostatics, electromagnetism, analysis of dc and ac circuits; Maxwell's equations, and radiation and propagation of electromagnetic waves; use, calibration, care of precision electrical engineering instruments. Three lec per wk and one 3-hr lab per wk, second semester. Prereq: 114 or 212, Math 200.

351 Elementary Quantum Mechanics (3 cr) F or S (185)

Methods; one dimensional harmonic oscillator, free particle, rectangular potential barrier, hydrogen atom, perturbation theory. Prereq: 322, 360.

360 Introduction to Modern Physics (3-4 cr) F (125)

Qualitative ideas and simpler quantitative results of atomic physics; the electron, quantum theory, relativity, atomic structure, X-rays, solid state physics; use of modern apparatus; experiments of historical interest in sub-atomic physics. Three lec and one 3-hr lab per wk. Prereq: 114 or 212, Math 200.

411-412 Physical Instrumentation I-II (3 cr; 2 cr) F-S (129-130)

Methods and instruments used in experimental physics; electronic techniques; design problems in electronic measurement of physical quantities encountered in research. Two lec (one lec 2nd semester) and one 3-hr lab per wk. Prereq: 212 and Math 200 for 411; 411 for 412.

- 413 Advanced Physics Laboratory (2 cr) F or S (157)**
Two 3 hr labs per wk. Prereq or coreq: 412.
- 431-432 Thermodynamics and Kinetic Theory (3 cr) F-S (155-156)**
Laws of thermodynamics, kinetic theory and their application to topics in physics; material chosen to prepare students for advanced study in statistical physics. Prereq or coreq: 321 or perm.
- 443 Optics (4 cr) F or S (141)**
Geometrical optics and photometry, interference, diffraction, double refraction, polarization; applications to modern optical instruments; experiments in optics of lenses, photometry, lasers, interferometry, polarized light. Three lec and one 3-hr lab per wk. Prereq: 114 or 212, Math 200.
- 463-R464 Introduction to Solid State (3 cr) F or S (153-R154)**
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. Prereq: 322 or perm.
- 465 Introduction to Nuclear Physics (3-4 cr) F or S (181)**
Elementary particles, structure of the nucleus, processes of transformation, interaction of nuclear radiation with matter, nuclear reactions, particle accelerators, fission, nuclear reactors, cosmic rays. Three lec and one 3-hr lab per wk. Prereq: 360.
- N467 Elementary Particles (3 cr) SS (N128)**
Recent theoretical work and experimental methods.
- R471 Introduction to Theoretical Physics (3 cr) F or S (R176)**
Vector and tensor methods in conjunction with Newtonian and Lagrangian methods in solving problems of mechanical systems. Prereq: general physics, differential equations and perm.
- 491 Proseminar (1 cr) F (161)**
Recent developments. Prereq: sr standing in physics.
- 499 Research (1-6 cr) F & S (191)**
Undergraduate thesis. Prereq: jr standing in physics and perm of dept.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- R506 Radiological Shielding and Design Concepts (3 cr) F & S (R286)**
Radiation shielding and engineering design principles of materials, structures and facilities. Prereq: basic differential and integral calculus, and perm.
- 507-508 Modern Techniques of Science Instruction in Physics (2 cr) F-S (287-288)**
Also offered as Ed 587-588. Emphasis on extent and nature of subject-matter material for secondary schools and colleges.
- N509 Structure of Matter (3 cr) SS (N209)**
See Chem N509 for description.
- 511-512 Techniques of Experimental Physics (3 cr) F & S (275-276)**
Development of experimental techniques and skills in active research fields; foundation for any field of physics. 9 hrs of lab per wk. Prereq: 412 and perm.
- N520 Analytical Mechanics (3 cr) SS (N225)**
Dynamics and kinematics of particles; statics, dynamics and kinematics of rigid bodies.

521 Advanced Mechanics (3 cr) F or S (221)

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.

531 Statistical Mechanics (3 cr) F or S (234)

Classical statistical mechanics of Maxwell, Boltzmann and Gibbs; Maxwell-Boltzmann distribution law; Boltzmann's H-theorem, quantum statistical mechanics. Bose-Einstein and Fermi-Dirac statistics; Applications to problems in thermodynamics. Prereq: 431, 551, or perm.

N540 Electricity and Magnetism (3 cr) SS (N235)

Electrostatics, magnetostatics, electromagnetism, dc and ac circuits; fundamental electrical measurements. Four lec and one 3-hr lab per wk.

541-542 Electromagnetic Theory (3 cr) F-S (223-224)

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.

551-552; 553 Quantum Mechanics (3 cr) F-S; F or S (271-272; 273)

551-552: physical basis; Schroedinger wave formulation, Heisenberg matrix formulation, transformation theory, approximation methods, radiation theory, theory of scattering; some applications to atomic systems. 553: relativistic quantum mechanics, field theory and quantum electrodynamics; applications to theory of radiation, pair production, scattering. Prereq: 322, 360 for 551-552; 552 for 553.

N560 Atomic and Nuclear Physics (3 cr) SS (N266)

Concepts; methods of determining fundamental constants of atomic physics, structure of the nucleus, processes of transformation, nuclear reactions, particle accelerators, fission and nuclear reactors.

ID561 Atomic Spectra and Atomic Structure (3 cr) F or S (211)

Experimental methods for the production and investigation of spectra, interpretation of spectral series, stationary states, spinning electrons and fine line structure, vector models; Zeeman and Stark effects, intensity of spectral lines. Prereq: 351 or 551.

ID562 Molecular Spectra (3 cr) S (212)

Molecular spectra and their relations to molecular structure; emphasis on diatomic and triatomic molecules. Prereq: 561 or perm.

563-564 Solid State Physics (3 cr) F-S (241-242)

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.

WS565-R566 Nuclear Physics (3 cr) F or S (283-R284)

WSU 565. Nuclei and nuclear interactions from a theoretical and experimental viewpoint, properties of nuclei, two-body problems, complex nuclei, nuclear spectroscopy, nuclear reactions, interaction of nuclei with radiation, beta decay, nuclear shell structure, nuclear models, mesons and meson theory; topics in high energy physics. Prereq: 465, and 351 or 551.

571-572 Theoretical Physics (3 cr) F-S (251-252)

Methods and problems. Prereq: 322 or perm.

- N580 Professional Problems (1-6 cr) SS (N270)**
Individual study in any field of physics. Prereq: perm.
- 581 Topics in Advanced Physics (1-9 cr) F or S (290)**
Topics of interest to students and staff. Three lec per wk.
- R585-R586 Fundamental Reactor Kinetics (3 cr) F-S (R243-R244)**
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.
- R587 Reactor Physics for Engineers (3 cr) F or S (R285)**
Review of nuclear physics, nuclear fission, chain reaction and reactor theory. Prereq: Math 310 or equiv.
- R588 Experimental Nuclear Physics (3 cr) F or S (R287)**
Experimental methods of interpretation of experimental measurements to determine the static and dynamic properties of nuclei. Prereq: 360 and perm.
- R589 Advanced Reactor Theory (3 cr) F or S (R289)**
Integrodifferential Boltzmann equation; integral Boltzmann equation; P_n approximation; double P_n approximation; diffusion theory as obtained from transport theory; microscopic heterogeneous reactor theory, small source theory; reactor kinetics; perturbation theory; burnable poisons; control rod theory. Prereq: perm.
- 591 Seminar (1 cr, max 2) F & S (261-262)**
Recent developments; papers. Prereq: gr standing in physics.
- 600 Doctoral Research and Dissertation (cr arr) F & S (300)**
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PLANT SCIENCES (PISc)

A. M. Finley (Head). Professors Erickson, Guthrie, Finley, Helton, Seely; Associate Professors Fenwick, Huber, Slinkard, Snyder, Watson; Assistant Professors Boe, Murray, Ridley.

See the beginning of Part III (Course descriptions) for numbering system and key to abbreviations and symbols.

- 102 Plant Sciences in Agriculture (3 cr) S (1)**
Importance and distribution of economic plants; relationship of plants to man's welfare; basic plant growth processes, plant relationships and development (MURRAY)
- 202 Plant Propagation (3 cr) S (58)**
Propagation of plants of economic importance; physiology of sexual and asexual reproduction. Two lec and one 2-hr lab per wk. Prereq: Biol 203 or perm. (BOE)
- 303 Plant Pathology (4 cr) F (104)**
Plant diseases due to bacteria, fungi, viruses and nematodes; causes, symptoms, effects, dissemination and control. Two lec and two 2-hr labs per wk. Prereq: Biol 203 (FENWICK)
- 305 Biology of Field Crops (3 cr) F (103)**
Alt yrs 1970-71. Classification, identification and adaptation of field crops; factors influencing yield, composition, quality and utilization. One 1-day field trip. (ERICKSON)

- 308 Forage Crops (2 cr) S (108)**
Production, management and utilization of annual and perennial forage plants for green manure, hay and pasture. (SLINKARD)
- 312 Agriculmatology (3 cr) S (109)**
Relationship of organisms to their environment; significance of environment to agricultural production. Prereq: Biol 203 or perm. (BOE)
- 314 General Genetics (3 cr) F (101)**
Also offered as Biol 351 and Genet 314. See Biol 351 for description. (SLINKARD)
- 317 Woody Plant Materials (2 cr) F (117)**
Ornamental woody plants for landscape use. Two 2-hr labs per wk; one 1-day field trip. (SNYDER)
- 338 Weed Control (3 cr) S (138)**
Biological, chemical and cultural control of weeds. Two lec and one 2-hr lab per wk. (SEELY)
- 400 Undergraduate Research (1-2 cr, max 4) F & S (193-194)**
Prereq: perm.
- 401 Crop Physiology (3 cr) F (162)**
Principles of crop management and their relationship to physiology of vegetative and reproductive growth of crop plants. Prereq: Biol 311 or perm. (RIDLEY)
- 405 Biology of Weeds (3 cr) F (105)**
Alt yrs 1969-70. 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. (ERICKSON)
- 410 Proseminar (1 cr, max 2) F & S (195-196)**
Review of current literature.
- 446 Plant Breeding (3 cr) S (102)**
Alt yrs 1969-70. Also offered as Genet 446. Application of genetic principles to the improvement of crop plants. Two lec and one 2-hr lab per wk. Prereq: 314. (SLINKARD)
- 461 Pomology (3 cr) F (161)**
Alt yrs 1970-71. Production and management of tree fruits; physiology of the tree and stored fruit. Prereq: Biol 203 or perm. (BOE)
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 508 Ecology of Soil-Borne Plant Pathogenic Organisms (3 cr) S (208)**
Effects of climate, crop management and microbial associations on the prevalence and pathogenic activity of soil-borne plant pathogenic organisms. (WATSON)
- 510 Seminar (1 cr, max 6) F & S (201-202)**
Review of current research and literature.
- 512 Plant Virology (3 cr) S (210)**
Nature and properties of plant viruses as related to pathogenic activity. One lec and two 2-hr labs per wk. (GUTHRIE)
- 514 Physiology of Disease (4 cr) S (213)**
Physiological aspects of parasitism, pathogenesis and host-parasite interactions. Three lec and one 2-hr lab per wk. (HUBER)
- 516 Environmental Plant Physiology (3 cr) S (217)**
Advanced study in crop physiology. Prereq: perm. (RIDLEY)

- 519 Genetics Literature (2 cr) S (218)**
Also offered as Genet 519. Prereq: 314. (SLINKARD)
- 520 Advanced Crop Production (1-3 cr, max 6) F & S (221-222)**
Specialized training in selected phases of crop production and management.
- 530 Research Methods (2 cr, max 4) F & S (209)**
(a) Plant Pathology (c) Plant Breeding
(b) Horticulture (d) Weed Control
Individual and group training and experience.
- 532 Advanced Weed Studies (1-3 cr, max 6) F & S (231-232)**
Specialized training in selected phases.
- 534 Cytogenetics (3 cr) S (224)**
Alt yrs 1970-71. Also offered as Genet 534. Chromosomal behavior, polyploidy, chromosomal aberrations and mutagens in relation to genetics. Two lec and one 3-hr lab per wk. Prereq: 314. (SLINKARD)
- 536 Properties and Functions of Herbicides (2 cr) S (234)**
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. (SEELY)
- 538 Pesticide Toxicology (3 cr) S (280)**
See Ent 538 for description.
- 600 Doctoral Research and Dissertation (cr arr) F & S (300)**

POLITICAL SCIENCE (PolSc)

R. E. Hosack (Head), Professors Borning, Duncombe, Hosack, Martin; Associate Professor Fan; Instructors Grimes, Skrbek

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

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 6 lower-division credits in political science are required for registration in upper-division courses; exceptions by permission.

- 101-102 American Government (3 cr) F & S (1-2)**
National government. 101: basic concepts and major structural elements. 102: policy issues and functions.
- 105 Elements of Political Science (3 cr) F or S (5)**
Primarily for majors. Principles and nature of the discipline; comparative processes, ideas, problems in government and politics in the modern world.
- 275 American State Government (3 cr) F (75)**
State politics, parties, interest groups, constitutions, legislative, executive and judicial branches; federal-state relations; key issues of state politics—taxation, education, water, and welfare. (DUNCOMBE)
- 276 American Local Government (3 cr) S (76)**
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. (DUNCOMBE)

- 285-286 Comparative Government (3 cr) F-S (85-86)**
 285: systems of parliamentary democracy; responsible ministry, executive-legislative dynamics, recent political developments. 286: autocratic systems such as the USSR and Communist China; origins, role of party, functions of government, and status of the individual. (BORNING, FAN)
- 341 World Politics (3 cr) SS (141)**
 Recent developments in international politics; chief elements in current foreign policies of major world powers. (HOSACK)
- 426 Political Thought (3 cr) F or S (126)**
 Modern political ideas and their role in domestic and world politics; major contemporary ideologies and currents of thought. (BORNING, FAN)
- 428 American Political Thought (3 cr) F or S (128)**
 Political philosophy in America in pertinent writings and movements throughout our history; ideas of dissent; prevalent concepts of various eras. (BORNING)
- 430 Political Participant Internship (4-8 cr) F**
 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. (DUNCOMBE, GRIMES)
- 431 Political Parties (3 cr) F or S (131)**
 Public opinion and the political process; party machines, spoils system, nominating methods, conduct of elections. (MARTIN, GRIMES)
- 432 Legislation and Legislative Bodies (3 cr) F or S (132)**
 Practical workings; representation, committee activity, lobby, influence of the executive. (GRIMES)
- 434 Basic Factors in American Politics (3 cr) F or S (134)**
 Interest groups, their organizational patterns; pressure-group activities in their relation to our political system and to the public interest. (GRIMES)
- 435 Political Research Methods and Approaches (3 cr) F or S (135)**
 Behavioral approaches to political phenomena; research design and statistical analysis using IBM equipment; voting, legislative blocs, elites, roles, decision-making, communications. (DUNCOMBE, FAN, GRIMES)
- 437 International Relations (3 cr) F (137)**
 Principles of international politics; nationalism, imperialism, militarism, internationalism, and problems that result therefrom. (HOSACK, FAN)
- 438 Conduct of American Foreign Policy (3 cr) S (138)**
 Processes by which our foreign policy is made and executed; roles of pressure groups, Congress, the President, Department of State and its Foreign Service; their effect upon specific policies. (HOSACK, FAN)
- 440 Principles of International Law and Organization (3 cr) S (140)**
 Chief agencies of international cooperation, past and present; sources and uses of international law; evolution of general principles of international law; development of the UN. (HOSACK)
- 443 Contemporary Far Eastern Politics (3 cr) F or S (143)**
 Problems of the area, their sources and proposed solutions, as presented by Orientals; conflict of interest of Powers in Eastern Asia; situation of China and Japan. (HOSACK, FAN)
- 446 The Chinese Empire (3 cr) F or S (146)**
 Comparative study of the oldest continuous political entity existing today; aspects

of traditional Chinese culture whose political connotations presumably contributed to this continuity. (HOSACK, FAN)

451 Introduction to Public Administration (3 cr) F (151)

Administrative institutions and relationships in the executive branch of government; dynamics of decision-making at the White House and departmental levels; role played by staff agencies in national government. (DUNCOMBE)

452 Administrative Law (3 cr) F or S (152)

Regulations that control administrative authorities of government; rights, duties, liabilities of public officers; relief against administrative action; jurisdiction of and judicial control of public administration.

453 Public Management Techniques (3 cr) S (153)

Staff techniques important to persons entering many types of administrative work in government and other agencies; personnel, management surveys, data processing, budgeting, purchasing, public relations. (DUNCOMBE)

454 Administrative Organization and Behavior (3 cr) S (154)

Characteristics of individual decision-making; behavior of small work groups and organizational theory; leadership in administration. (DUNCOMBE)

457 Staff Management Techniques in State Government (4 cr) F or S

Primarily for students planning to enter state government administration. Personnel, budgeting, management surveys, data processing, purchasing, public relations. (DUNCOMBE)

458 Management Internship (4 cr) F or S

Directed internship in an agency of Idaho State Government; supervised work in staff management practices; students are placed in positions commensurate with their abilities and interests. Prereq: perm. (DUNCOMBE)

459 Legislative Internship (6-9 cr) S (159)

Directed internship in the Idaho State Legislature; supervised work for a legislator or legislative committee. Prereq: perm. (DUNCOMBE)

462 Government and Business (3 cr) F or S (162)

Power of government, national and state, over taxation, bankruptcy, money, conservation, housing, social welfare, etc.; governmental promotion and regulation of agriculture, business, labor. (MARTIN, GRIMES)

467 Constitutional Law (3 cr) F & S (167)

Leading constitutional principles in their historic setting; federal and state relations, power of Congress, due process, civil liberties.

483-484 Developing States (3 cr) F-S (183-184)

Comparative analysis of political institutions and processes in selected countries in the developing areas of the world.

493-494 Seminar in Urban Studies (2 cr) F-S

See Inter 493-494 for description.

500 Master's Research and Thesis (cr arr) F & S (300)

507-508 Seminar (2-4 cr, max 24) F-S (207-208)

- (a) Public Administration (one 2-day field trip)
- (b) American Foreign Policy
- (c) Contemporary American Politics
- (d) Comparative Government
- (e) Problems of Peace
- (f) Classics of Western Politics

- (g) Problems in American Political Thought
 - (h) National Policy and Administration
 - (i) The Legislative Process
 - (j) State Government and Administration
 - (k) Community Political Analysis
 - (l) Constitutional Law Problems
 - (m) Administrative Law Problems
 - (n) International Law
- 509 Directed Reading (1-3 cr, max 12) F & S (209-210)**
- (a) American Government and Politics
 - (b) Public Administration
 - (c) Public Law
 - (d) International Relations
 - (e) Political Thought
 - (f) Comparative Government
- Max 6 cr each subtitle. Prereq: perm.
- 528 Theory of Democracy (3 cr) F or S (228)**
Intensive analysis of the liberal-democratic theoretical model; critical examination of relevant political literature. (BORNING)
- 531 American Political Institutions (3 cr) F or S (231)**
History of social and economic bases in the development of American political institutions and government. (MARTIN)
- 555 Comparative Public Administration (3 cr) F or S (255)**
Administrative process in foreign nations and its relation to governmental, economic, social institutions; administrative aspects of U.S. governmental relations with other nations; art of overseasmanship. (DUNCOMBE, FAN)
- 580 Seminar in Administration and Contemporary Issues (3 cr) F & S**
See Inter 580 for description.
- 585 The Practice of Government (3 cr) F or S (285)**
Comparative analysis of functions of government in varied contexts. (HOSACK)
- 590 Scope and Methods of Political Science (3 cr) F or S (290)**
Relation of political science to other disciplines; systems of analysis; scientific methods and traditional approaches; research strategies appropriate to particular political problems.
- 600 Doctoral Research and Dissertation (cr arr) F & S (300)**

POULTRY SCIENCE — See Animal Industries

PSYCHOLOGY (Psych)

Victor E. Montgomery (Head), Professors Collier, Montgomery, Otnes; Associate Professors Crandall, Kjos; Assistant Professors Bergquist, Brogly, Rees.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

PREREQUISITE: Psych 100 is 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.

100 Introduction to Psychology (3 cr) F & S (1)

Principles; representative areas.

201-202 General Experimental Psychology (4 cr) F & S (75-76)

Primarily for majors and minors. Experimental methods and procedures. Two lec and two 3-hr labs per wk.

205-206 Developmental Psychology (3 cr) F & S (55-56)

Development of human behavior in the physical, intellectual, emotional and social areas. 205: conception to pre-adolescence. 206: adolescence to maturity.

301 The Exceptional Individual (3 cr) F (102)

Individuals who deviate from average mentally, physically, socially and emotionally to such an extent that special treatment and services are needed; identification, diagnosis, treatment, training and employment. Prereq: 205 or 206.

305 Comparative Psychology (3 cr) F (105)

Infra-human behavior, particularly vertebrates; experimental studies in motivation, learning, innate behavior, retention and problem solving. Prereq: Biol 202 or equiv.

311 Abnormal Psychology (3 cr) F & S (111)

Nature, causes, treatment and prevention of patterns of emotional disturbances and personality disorganization, including neuroses and psychoses. One or two 1-day field trips.

316 Industrial Psychology (3 cr) S (116)

Contributions of experimental, social, counseling and clinical psychology to the every day problems of organizations; emphasis on industrial organizations.

317 Introduction to Statistics for the Behavioral Sciences (3 cr) F (117)

Descriptive statistics; elementary correlation analysis; sampling theory and statistical inference. Prereq: Math 111-112.

320 Social Psychology (3 cr) S (120)

The individual as he influences and is influenced by society; attitudes, prejudice, propaganda, cultural difference, personality, leadership and crowd behavior.

322 Vocational Guidance (3 cr) S (124)

Also offered 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.

- 341 Physiological Psychology (3 cr) F (141)**
Physiological bases of animal and normal human behavior. Prereq: Biol 201-202.
- 344 Sensation and Perception (3 cr) S (144)**
Fundamental processes and variables involved in sensory experiences of animals and man. Prereq: 201-202.
- 402 Theory of Psychological Measurement (3 cr) S (122)**
Measurement, techniques and problems of response measurement, reliability and validity, theoretical and practical limits of behavior measurement. Prereq: 317.
- 418 Intermediate Statistics for the Behavioral Sciences (3 cr) S (118)**
Theory and application of statistical methods in behavioral science; correlation, statistical inference, analysis of variance and covariance. Prereq: 317.
- 420 Principles and Practices in Guidance (3 cr) F & S (115)**
Nature of the guidance process and the services provided in pupil personnel work. Prereq: 6 cr in psychology or education.
- 421 Educational Psychology (3 cr) F & S (151)**
Application of psychological principles to the classroom situation. Prereq: 205 or 206.
- 455 Psychology of Motivation (3 cr) F (155)**
Biological and social variables influencing the activation, direction and self-maintenance of behavior. Prereq: 6 cr in psychology.
- 460 Occupational - Educational Information (3 cr) F (121)**
Sources, distribution and utilization of vocational and educational information. Two 1-day field trips.
- 461 Psychology of Personality (3 cr) F (161)**
Theories of personality, basic concepts, techniques of measurement and experimental methods; the normal personality. Prereq: one adv course in psychology.
- 481 Mental Deficiency (3 cr) F (180)**
History, nature, diagnosis, etiologies, clinical types and management of mentally deficient individuals. Primarily for students planning professional careers in this or closely related area. One 1-day field trip. Prereq: 205 or 206, and 301, 311, and perm.
- 490 Psychology of Learning (3 cr) S (190)**
Experimental literature on the nature and conditions of behavior change. Prereq: sr standing and 12 cr in psychology.
- 498 History and Systems of Psychology (3 cr) S (198)**
Origin and development of psychology within philosophy and science; development and elaboration of modern systems. Prereq: sr standing and 15 cr in psychology and social science, or perm of dept.
- 499 Independent Study (2-6 cr) F & S (199)**
Directed reading, projects and experimental studies. Prereq: sr standing and perm of dept.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 511 Psychological Evaluation I (3 cr) F or S (208)**
Assessment of the general intelligence capacities of the individual; relevant his-

tory, concepts and supervised practice in test administration; interpretation and reports.

513 Mental Health (3 cr) F or S (223)

Critical and historical review of current concepts of positive mental health; applications to treatment, prevention, and growth toward individual maturity. Prereq: 205, 311, 461, and perm.

520 Group Standardized Tests (3 cr) F (204)

Theories and group techniques of appraising individual characteristics, performance and behavior; lab experience in the evaluation of group tests and the collection and interpretation of data. Two lec and one 3-hr lab per wk. Prereq: 317.

523 Guidance Laboratory (2 cr) S

Supervised school experience in cumulative records and reports, information, placement, follow-up. Prereq: 420 and 460.

525 Techniques of Counseling (3 cr) F (225)

Case studies, role playing, and tape and video recordings.

527 Psychometric Assessments (3 cr) S (251a)

Developmental assessment techniques utilized by counselors in various settings. Prereq: 520 and 525.

529 Practicum in Counseling (3 cr) F & S (290)

To develop skill in individual counseling. Prereq: 525 and perm.

530 Introduction to Clinical Psychology (3 cr) F or S (211)

Practical, theoretical, research, and professional aspects of clinical psychology; breadth of the area; social-professional issues.

540 Psychological Evaluation II (3 cr) F or S (212)

Projective techniques with supervised practice in administration, scoring and interpretation of the three most frequently used devices.

555 Seminar (3 cr, max 12) F or S (261)

- (a) Developmental Psychology (child and adolescence)
- (b) Developmental Psychology (adult years)
- (c) Developmental Psychology (gerontology)
- (d) Group Dynamics
- (e) Research Design
- (f) Current Problems in Learning
- (g) Philosophical Backgrounds of Counseling and Psychology
- (h) Mental Retardation and Related Problems
- (i) Advanced Psychometric Methods
- (j) Teaching of Psychology
- (k) Personality Dynamics
- (l) Differential Psychology
- (m) Advanced Clinical Psychology
- (n) Current Problems in Perception
- (o) Current Problems in Social Psychology
- (p) Current Problems in Motivation
- (q) Current Problems in Professional Psychology
- (r) Community Mental Health Services
- (s) Management and Therapy of Childhood Problems
- (t) Professional Issues in Guidance
- (u) College Student Personnel Services
- (v) Developmental Problems of the College Student
- (w) Educational Psychology

Critical analysis of theory, method and literature

- 560 Theories of Vocational Choice (3 cr) S**
Psychological, sociological and economic foundation of vocational choice and adjustment. Two 1-day field trips. Prereq: 460.
- 561 Organization and Administration of Guidance Services (3 cr) S (Ed226)**
Local, state, and federal levels; primarily for those who will be responsible for the guidance services in public school systems.
- 564 Group Counseling (3 cr) F**
Principles and techniques of counseling with groups; dilectic and lab learning experiences. Prereq: 529 or perm.
- 565 Theories of Counseling (3 cr) F**
Consideration and evaluation of contemporary theories. Prereq: 525.
- 567 Advanced Practicum (3 cr) S**
Individual and group counseling procedures; field experiences in a variety of settings; minimum of 30 hrs of supervised counseling experience. Prereq: 529 and 555 (d).
- 569 Seminar in Guidance (1 cr) F**
Analysis and critique of individual guidance counseling experiences.
- 570 Internship (2-9 cr) F or S (291)**
(a) Counselor Education (c) School Pupil Personnel Services
(b) College Student Personnel Services (d) School Psychology
For students desiring additional training and supervised experience in guidance and counseling, and for students who intend to qualify as school psychologists. Not open to first-year graduate students. Prereq: perm of dept.
- 571 Psychological Evaluation IV (2-6 cr) F or S (251)**
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, 540, 551, and perm of dept.
- 599 Special Problems (2-4 cr, max arr) F & S (299)**
Max 6 cr may be applied to any one degree. Prereq: perm of dept.

RADIO-TELEVISION (Rad-TV)

Gordon Law (Head, Communications). Associate Professor Law; Assistant Professors Byrd, Haggart (Chairman); Instructors Ayer, Bondurant.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 141 Introduction to Radio-Television Broadcasting (3 cr) F & S (41)**
History, organization, operation and regulation of radio and television stations and networks. (BYRD)
- 253 Recording and Broadcasting Techniques (3 cr) F & S (53)**
Procedures for audio and video; uses and limitations of amplifiers, microphones, recorders and other equipment. (BONDURANT)
- 282 Introduction to Television Production (3 cr) F & S (82)**
Basic tools and theories; studio equipment, set design, lighting, picture compos-

ition and sound; students assist in KUID-TV productions. Two lec and one 2-hr lab per wk. Prereq: 253 or perm. (BYRD)

285 Announcing I (2 cr) F (85)

Voice control, pronunciation, enunciation, articulation; timing, phrasing and board operation; work required on KUID-FM and/or KUID-TV. (AYER)

287 Station Writing (3 cr) F (87)

Writing for radio and television; script format, terminology and commercial writing; all types of writing assignments encountered on local radio and television stations. (HAGGART)

311 Advanced Broadcasting Techniques and FCC Regulations (2 cr) F & S (111)

Operation and maintenance of broadcasting equipment; preparation for third phone FCC license. Prereq: 253 or perm. (BONDURANT)

322 Educational Uses of Radio and Television (2 cr) S (122)

Broadcast media in educational, instructional, informational and public relations applications. Open to non-majors. Prereq: jr standing.

488 Cinematography for Television (3 cr) S (188)

Basics of 16mm motion picture production and theory as they apply to the television industry; documentary and news film techniques. Two lec and one 2-hr lab per wk. Prereq: 282, Photo 281, or perm. (HAGGART)

489 Professional Problems (2 cr, max 4) F & S (189)

Research or field work on an individual or group basis. Prereq: perm.

491 Announcing II (2 cr) S (191)

Various types of announcing duties and the execution of each; work required on KUID-FM and/or KUID-TV. Prereq: 285 or perm. (AYER)

492 Advanced Television Production (3 cr) S (192)

Planning and execution of complete television programs; work required on KUID-TV. Two lec and one 2-hr lab per wk. Prereq: 282 or perm. (HAGGART)

493 Commercial Broadcasting (3 cr) F (193)

Place of sales in broadcasting; duties of station representatives, advertising agencies, station coverage, rate cards, contracts, sales promotion and ratings. Prereq: 141, 282, or perm. (LAW)

494 Radio-Television News (3 cr) F (194)

Techniques of editing, writing, and producing news programs; use of wire copy, news policies, codes and legal applications; all written work done on typewriters. Prereq: 287 or perm. (AYER)

499 Field Work (2 cr, max 4) F & S (199)

Directed practical experience. Prereq: sr standing in radio-television.

RECREATION — See Physical Education and Forestry

RELIGION (Rel)

Affiliate Staff: Stanley W. Thomas (Chairman), William O. Nelson, Andrew Schumacher.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

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 parts of the University, they secure the University's approval of courses and instructors. See general regulation J-5 (b) in Part I for credit limitations in this field.

- 104 Introduction to the Bible (3 cr) F or S (4)**
Types of literature represented; occasion and purpose of writing; development of biblical history and thought.
- 106 Fundamentals of Christianity (2 cr) F or S (6)**
Major themes, including such areas as creation, sin, reconciliation.
- 109 Old Testament Prophets (2 cr) F or S (9)**
Major prophets; circumstances, thought, religion, social ethics.
- 131 Introduction to Religion (3 cr) F or S (31)**
Growth of religious ideas; phenomenon of religion, characteristic expressions, recent trends.
- 133 Courtship and Christian Ethics (2 cr) F or S (33)**
Ethical viewpoints as they relate to dating, courtship and engagement.
- 163 The Gospels (2 cr) F or S (63)**
Authorship, content, historical value; life and teachings of Jesus Christ.
- 167 The Letters of St. Paul (2 cr) F or S (67)**
Life and thought of Paul, significance in early Christianity.
- 169 The Epistles and the Apocalypse (2 cr) F or S (69)**
First-century extant Christian literature other than the gospels.
- 186 Community Religious Leadership (2 cr) F or S (86)**
Dynamics of religious leadership, charismatic authority, bureaucratic structure, impact upon religious manifestation.
- 190 Great Religious Leaders (1 cr, max 4) F or S (90)**
Life and influence of such major contributors to the development of Christian thought as Aquinas, Augustine, Buber, Calvin, Kierkegaard, Luther, Muntzer, and Wesley. Consult the departmental office for special emphasis each term.
- 273 World Religions (2 cr) F & S (73)**
Islam, Hinduism, Buddhism, Confucianism, Judaism, and Christianity, within the context of the internationalization of culture.
- 282 Christian Ethics (2 cr) F or S (82)**
Nature of man, basis for morality, the context of decisions.
- 284 Christianity and the Problems of Western Culture (1 cr) F or S (84)**
Viewpoints concerning such issues as peace and war, race relations, church and state, labor and capital.

- 321 Contemporary Theological Thought (2 cr) F or S (121)**
Recent developments in Christian theology; writings of such men as Barth, Tillich, Bultmann, the Niebuhrs, Haring, Kung, de Chardin. Prereq: 106 or 131, or perm.
- 322 Nature of the Church (1 cr) F or S (122)**
As defined in New Testament usage, historical practice and contemporary thinking about the church. Prereq: 106 or 131, or perm.
- 323 Religion and Contemporary Society (2 cr) F or S (123)**
Nature and role of religion in America. Prereq: 131 or perm.
- 430 Directed Reading (1-2 cr) F & S (130)**
Prereq: perm of dept.

RUSSIAN — See Foreign Languages

SECRETARIAL STUDIES — See Office Administration

SOCIAL SCIENCE (SocSc)

Professor Rolland.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 101 Man in a Nuclear Age (2 cr) F or S**
Concerns about modern 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.
- X185 Study Tour Abroad (1-9 cr) X (X85)**
Economic, political, social life of one or more foreign countries. Students pay own expense. Max 1 cr per wk. Prereq: grad from high school.
- 375 Social Science for Teachers (2 cr) F or S (175)**
Bibliography, sources, materials. Prereq: near completion of teaching major in social science or perm. (ROLLAND)
- X385 Study Tour Abroad (1-9 cr) X (X185)**
See X185 above for basic description. Prereq: jr standing or perm.
- 490 Community Development (2-4 cr) SS (190)**
Revenue, program, community relations and similar problems of school districts, municipalities, other units of local government. (DUNCOMBE)
- 491 Proseminar (1 cr) F & S (191)**
For prospective graduate students. Current problems in the social sciences.
- 497 Readings in the Social Sciences (2 cr, max 4) F & S (197-198)**
Selected writings dealing with significant ideas. Prereq: perm of dept.
- 535 Advanced Quantitative Analysis in Social Research (3 cr) F or S (235)**
Such methods and techniques as multivariate analysis and game theory applied to social phenomena. Prereq: PolSc 435 or Bus 231 or equiv.

SOCIOLOGY (Soc)

Roderick Sprague (Head, Sociology/Anthropology), Associate Professor Chapin; Assistant Professors Havey, Johnson, Wenner.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

PREREQUISITE FOR UPPER-DIVISION COURSES: Ordinarily 3 credits in lower-division courses in sociology are required for registration in upper-division courses in this field; exceptions by permission.

- 110 Introduction to Sociology (3 cr) F & S (1)**
Basic concepts, principles, processes, including socialization, primary groups, race relations, the family, religion, and population.
- 130 Social Problems (3 cr) F & S (2)**
Concepts relating technological and institutional changes to current social problems.
- 220 Marriage (3 cr) F or S**
Preparation for marriage, mate selection, courtship, sexual, economic and personal marital adjustment, marital problems, child birth, and child rearing.
- 240 Introduction to Social Welfare (3 cr) F (57)**
Analysis of the forces which led to the development of current social welfare fields. Prereq: 110 or 130.
- 241 Organization of Social Services (3 cr) S (58)**
Contemporary public social welfare policy and programs. Prereq: 240.
- 310 Rural Sociology (3 cr) F or S (145)**
Rural-urban relationships; role of agricultural class in industrial society; number, origin, distribution, composition of rural population. Two 1-day field trips.
- 311 Urban Sociology (3 cr) F or S (146)**
Population, spatial, social patterns characteristic of modern urban communities. One 1-day field trip.
- 312 Sociology of Organizations (3 cr) F or S (136)**
Analysis of positions, roles, norms, authority structures in traditional, formal, complex, and bureaucratic organizations.
- 320 The Family (3 cr) F or S (121)**
Historical and economic background; the family today from a cross-cultural perspective; conditions affecting the family in America.
- 321 The Community (3 cr) F or S (122)**
Origins, types, structural and functional patterns, and processes of the community. Two 1-day field trips.
- 330 Juvenile Delinquency (3 cr) F or S (130)**
Nature, causation, social reactions; treatment and rehabilitative programs.
- 331 Criminology (3 cr) F or S (132)**
Behavior systems and deviant patterns; modern penal institutions and methods; crime prevention. One 1-day field trip.

- 410 Introduction to Social Research (3 cr) F or S (138)**
Principal methods of data collection, analysis and interpretation.
- 411 Contemporary Sociological Theory (3 cr) F or S (191)**
Schools and trends of sociological thought.
- 420 Social Institutions (3 cr) F or S (131)**
Functions, purposes and interdependence of social institutions.
- 421 Population and Migration (3 cr) F or S (135)**
Theories and methods in the study of population composition, distribution and migration.
- 430 Public Opinion (3 cr) F or S (165)**
Mass communication and other factors in the formation of public opinion.
- 431 Problems of Aging People (3 cr) F or S (195)**
Concepts and propositions relating to the role of older people. Two 1-day field trips.
- 440 Methods of Social Work (3 cr) F & S (160)**
Methods, principles, values, occupational roles in social work practice and interviewing. Prereq: 240.
- 441 Field Experience (3 cr) F & S (161)**
Seminar, supervised study and observation in selected social agencies. One day weekly in field experience. Prereq or coreq: 440.
- 493-494 Seminar in Urban Studies (2 cr) F-S**
See Inter 493-494 for description.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 501-502 Seminar (2-4 cr) F-S (207-208)**
(a) Methods of Sociological Research
(b) Sociological Theory
(c) Contemporary Social Problems
Prereq: perm.
- 505-506 Directed Reading (1-3 cr) F-S (209-210)**
(a) Sociological Theory
(b) Demography and Human Ecology
(c) Specialized Fields
Prereq: perm.

SOILS (Soils)

Alvin C. Wiese (Head, Agricultural Biochemistry and Soils). Professor Lewis; Associate Professors: Fosberg, Harder, Jones; Assistant Professor Naylor.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 205 General Soils (3 cr) F & S (51)**
Physical, biological and chemical properties of soils and their relationships to plant growth. Prereq: Chem 111 or equiv; coreq for agriculture students: 206.

- 206 General Soils Laboratory (1 cr) F & S (52)**
One 2-hr lab per wk. Coreq: 205.
- 344 Soil Conservation and Management (3 cr) S (158)**
Alt yrs 1970-71. 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. (HARDER)
- 400 Undergraduate Research (1-2 cr, max 4) F & S (151)**
Individual study. Prereq: sr standing and perm.
- 408 Forest Soils (2 cr) S (108)**
See For 408 for description.
- 412 Soil Chemistry (4 cr) S (112)**
Alt yrs 1970-71. Chemical properties of soil and their measurement, including ion exchange, fixation reactions, soil testing techniques, and total elements present. Two lec and two 3-hr labs per wk. Prereq: 205, Chem 253 or 256 (NAYLOR)
- 413 Water Quality (2 cr) F**
Alt yrs 1969-70. Water chemistry and interaction between water and soils. Prereq: Chem 256 or equiv. or perm. (LEWIS)
- 417 Soil Clay Mineralogy (2 cr) F**
Alt yrs 1970-71. Structure, chemical and physical properties of clay minerals found in soils. Prereq: Chem 112 or 114. (LEWIS)
- 425 Soil Microbiology (3 cr) F (125)**
See Bact 425 for description.
- 435 Soil Physics (3 cr) F (157)**
Physical properties of soils and their relationship to moisture, aeration, and temperature; cultural practices and erosion problems. Two lec and one 3-hr lab per wk. Prereq: 205. (HARDER)
- 446 Soil Fertility (3 cr) S (160)**
Alt yrs 1969-70. Principles of soil fertility maintenance; availability of plant nutrients and their relationship to plant growth and fertilization practices. Prereq: 205. (JONES)
- 454 Soil Development and Classification (3 cr) S (154)**
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. (FOSBERG)
- 490 Proseminar (1 cr, max 2) F & S (153)**
Prereq: jr standing and perm.
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 505 Advanced Laboratory Techniques (4 cr) F (205)**
See AgBIC 505 for description.
- 507 Advanced Forest Soils (3 cr) F (221)**
See For 521 for description.
- ID511 Soil Organic Matter (2 cr) F (209)**
Alt yrs 1970-71. Formation, chemical properties and significance of the soil organic fraction. Prereq: 412, Bact 425 and a course in organic chemistry, or perm. (NAYLOR)

512 Advanced Soil Chemistry (3 cr) S (211)

Alt yrs 1969-70. Theory of chemical properties of soil colloidal systems. Prereq: 412 and course in physical chemistry, or perm. (NAYLOR)

515 Chemistry of Plant Nutrients (3 cr) F (215)

Alt yrs 1969-70. Chemistry of plant nutrients in the soil and relationship to uptake and use by plants. Prereq: 205, Chem 253 or 256, or perm. (LEWIS)

WS536 Advanced Soil Physics (3 cr) S (257)

Alt yrs 1969-70. WSU 511. Physics and physical chemistry of the soil-water system. Two lec and one 3-hr lab per wk. Prereq: course in soil physics and physical chemistry or perm. (GARDNER)

546 Advanced Soil Fertility (3 cr) S

Alt yrs 1970-71. Methods used in the evaluation of soil fertility; experimental techniques and interpretations of results. Prereq: 446 or 515, or perm. (JONES)

548 Mineral Nutrition (3 cr) S (227)

Alt yrs 1969-70. See Bot 511 for description.

555 Advanced Soil Genesis and Classification (3 cr) F (254)

Alt yrs 1969-70. Genesis, classification and interpretation of soils; field investigations emphasizing the interrelationships to development of soil properties, their classification and interpretation. Two lec and one 3-hr lab per wk; one 3-day or three 1-day field trips. Prereq: 454 or perm. (FOSBERG)

590 Seminar (1-2 cr, max 4) F & S (203)

600 Doctoral Research and Dissertation (cr arr) F & S (300)

SPANISH — See Foreign Languages



SPEECH (Sp)

Edmund M. Chavez (Head, Drama-Speech), Professor Whitehead (Chairman);
Instructors Jenness, Mendoza, Miles.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

- 109 Intercollegiate Forensics (1 cr, max 4) F & S (9)**
Preparation and intercollegiate competition on the national debate topic and in individual speaking events.
- 111 Great Speakers on Great Issues (2 cr) F & S (11)**
Speakers who influenced the development of Western thought and history; historical and rhetorical significance of each speaker.
- 131-132 Fundamentals of Speech (2 cr) F & S (31-32)**
Skills and techniques of effective speaking; preparation, delivery, and listening. Prereq: 131 for 132, or perm.
- 262 Parliamentary Law and Procedure (2 cr) F & S (62)**
Practice of speech under parliamentary conditions.
- 351-352 Advanced Speaking (2 cr) F-S (151-152)**
Oral style; psychology of attention and suggestion; other speech problems; preparation and presentation of speeches.
- 361 Discussion and Conference Methods (2 cr) F (161)**
Responsibilities of the chairman and participants; group discussion of current problems; evidence, fallacies and types of reasoning.
- 362 Speech and Social Control (2 cr) S (162)**
Psychology of persuasion and other aspects of speech as a means of social control.
- 385 Voice and Speech Improvement (2 cr) F (185)**
Improvement of such vocal attributes as quality, force, time, and pitch; articulation and pronunciation through the international phonetic alphabet.
- 386 Speech Correction (2 cr) S (186)**
Primarily for teachers. Diagnosis and therapy of delayed speech, voice defects, articulatory defects, and stuttering.
- 391 Propaganda and Public Opinion (2 cr) F (191)**
Sources and psychology of propaganda and its relation to the formation of public opinion.
- 395 Argumentation (2 cr) F or S**
Analysis, reasoning, types of evidence, organization, and refutation in debate.
- 475 Speech for Teachers (2 cr) S (175)**
Speech problems that confront the teacher in the classroom; speech pedagogy.
- 492 American Public Address (2 cr) F (192)**
Selected American speakers from the colonial period to the present; theories of rhetorical criticism.

494 Introduction to Rhetorical Theory (2 cr) F (194)

Development of modern rhetorical theory; contributions of Aristotle, Cicero, Quintilian, Campbell, Blair, Whately, Adams, and contemporary rhetoricians.

496 Introduction to Semantics (2 cr) S

Basic relationships between language and the people who create, use, and respond to it.

TELEVISION — See Radio-Television

VETERINARY SCIENCE (VS)

Floyd W. Frank (Head). Professors Ardrey, Frank; Associate Professor Bailey.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

371 Anatomy and Physiology (4 cr) F (171)

Structure and function of tissues and organ systems of domestic and wild animals. Three lec and one 2-hr lab per wk. (BAILEY)

400 Independent Study (1-3 cr, max 6) F & S (177-178)

Prereq: perm.

410 Seminar (1 cr, max 2) F & S

(FRANK)

452 Diseases and Care of Laboratory Animals (4 cr) S

Vertebrate animal species commonly employed as laboratory animals; diseases, sanitation, environmental control, and general care. Three lec and one 2-hr lab per wk. (FRANK)

473 Non-infectious Diseases (4 cr) F

Of domestic and game animals. Three lec and one 2-hr lab per wk. (BAILEY)

474 Animal Diseases: Infectious (4 cr) S (174)

Causes, transmission, susceptibility, symptoms, diagnosis, prevention, and control of major infectious diseases and parasites of domestic animals. Three lec and one 2-hr lab per wk. Prereq: 371, Bact 250. (BAILEY)

500 Master's Research and Thesis (cr arr) F & S (300)

520 Directed Studies (1-2 cr, max 4) F & S (200)

Prereq: perm.

VOCATIONAL TEACHER EDUCATION (VocEd)

Everett V. Samuelson (Dean, College of Education), Professor Kindschy; Associate Professors Ertel, Kjos (Coordinator), Cvanacara.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

RELATED FIELDS: For other course offerings in vocational teacher education, see the agricultural education, business education (office occupations and distributive education) and home economics course sections.

270-370-470 Technical Competence I-II-III (1-10 cr) F & S -

Credits 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 area. Prereq for 270: 9 cr in residence in vocational teacher education. Prereq for 370: completion of jr yr in vocational teacher education. Prereq for 470: completion of sr yr in vocational teacher education.

322 Vocational Guidance (3 cr) S (Psych 124)

See Psych 322 for description.

351 Principles of Vocational Education (2 cr) F (AgEd 151)

See AgEd 351 for description.

420 Evaluation in Vocational Education (3 cr) F & S (IEd 220)

See IEd 420 for description.

450 Industrial Safety (3 cr) F or S (IEd 152)

See IEd 450 for description.

451 School Shop Planning and Administration (3 cr) F or S (IEd 151)

See IEd 451 for description.

461 Occupational and Job Analysis (3 cr) F or S

Methods, techniques and procedures in analyzing occupations and jobs into their basic elements.

462 Vocational Education Curriculum (3 cr) F or S (IEd 162)

See IEd 462 for description. Prereq: 461.

472 Vocational Education Methods (3 cr) F or S (IEd 172)

See IEd 472 for description.

480 Technical Extension (1-6 cr) F & S

Experiences to enable the individual to gain depth in technical competence and to maintain skills in harmony with current industrial practice. Prereq: 270.

490 Directed Study (1-3 cr, max 6) F & S (Ed 190)

Prereq: perm.

497 Coordination Techniques (3 cr) S (BusEd 197)

See BusEd 497 for description.

ZOOLOGY (Zool)

Doyle E. Anderegg (Head, Biological Sciences), Professor Schell (Chairman); Associate Professors Forbes, Larrison; Assistant Professors Ferguson, Mead, Rabe, Wallace, Waldo.

See the beginning of Part III (Course Descriptions) for numbering system and key to abbreviations and symbols.

118 Introductory Human Physiology (3 cr) S (8)

Two lec and one 3-hr lab per wk. Prereq: 127 (FERGUSON)

127 Introductory Human Anatomy (3 cr) F (7)

Two lec and one 3-hr lab per wk. (FORBES)

315 General Physiology (4 cr) F (105)

Cells, tissues, organ systems. Three lec and one 3-hr lab per wk. Prereq: Biol 202 and organic chemistry. (FERGUSON)

323 Comparative Vertebrate Embryology (4 cr) F (113)

Organogeny, ovulation, fertilization, cleavages, hormonal control, experimental methods; frog, chick, pig development. Two lec and two 3-hr labs per wk. Prereq: 1 yr general biology or Biol 202.

324 Comparative Vertebrate Anatomy (4 cr) S (154)

Dissection; general vertebrate anatomy; evolution of organ systems. Two lec and two 3-hr labs per wk. Prereq: Biol 202. (MEAD)

366 Histological Technique (2 cr) S (110)

Methods of fixing, sectioning, staining, mounting. Two 3-hr labs per wk. Prereq: Biol. 202. (SCHELL)

399 Independent Study (1-3 cr max 6) F & S (119-120)

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|--|--------------------------|
| (a) Animal Ecology | (j) Invertebrate Zoology |
| (b) Comparative Anatomy of Vertebrates | (k) Mammalogy |
| (c) Cytology | (l) Vertebrate Evolution |
| (d) Embryology | (m) Ornithology |
| (e) Genetics | (n) Parasitology |
| (f) Herpetology | (o) Physiology |
| (g) Histology | (p) Ichthyology |
| (h) Ethology | (q) Senior Report |
| (i) Endocrinology | |

Reading and/or research. Prereq: perm of dept.

412 Comparative Vertebrate Reproduction (3 cr) S

Major events in reproductive cycles of vertebrates, using mammals as the basic example and contrasting their reproductive processes with those of fish, amphibians, reptiles, birds. Two lec and one 3-hr lab per wk. Prereq: Biol 202 and course in zoology. (MEAD)

416 Mammalian Physiology (4 cr) S (106)

Organs and organ systems of vertebrates; emphasis on mammals. Three lec and one 3-hr lab per wk. Prereq: 315 or perm. (FERGUSON)

417 Endocrine Physiology (3 cr) F

See Anl 451 for description.

- 427 Vertebrate Histology and Organology (4 cr) F (109)**
Tissues and minute structure of chief mammalian organs. Two lec and two 3-hr labs per wk. Prereq: 324 or perm. (MEAD)
- 436 Limnology (3 cr) S (126)**
See For 416 for description.
- 481 Ichthyology (3 cr) F (111)**
Also offered as For 411. Taxonomy, anatomy, physiology, distribution and ecological relationships of fishes. Two lec and one 3-hr lab per wk; two 1-day field trips; field labs. Prereq: Biol. 202. (WALLACE)
- 482 Ornithology (3 cr) S (130)**
Origin, evolution, structure, habits, adaptations, distribution, identification, classification, economic values of birds; birds of Idaho and Pacific Northwest. Two lec and 3-hr lab per wk; two 1-day field trips. Prereq: Biol 202 or perm. (LARRISON)
- 483 Mammalogy (3 cr) F (131)**
Classification, distribution, ecology, food habits, economic importance of mammals, especially those of Idaho and Pacific Northwest. Two lec and one 3-hr lab per wk. Prereq: Biol 202 or perm. (LARRISON)
- 484 Invertebrate Zoology (5 cr) F (153)**
Fresh-water, marine, terrestrial invertebrates; morphology, ecology, evolution. Three lec and two 3-hr labs per wk; one 4-day field trip. Prereq: Biol 202 or perm. (RABE)
- 487 Protozoology (3 cr) F (116)**
Classification, morphology, physiology, ecology of protozoa. Two lec and one 3-hr lab per wk. Prereq: Biol 202. (SCHELL)
- 488 Parasitology (3 cr) S (118)**
Animal parasites, emphasis on those of man, identification, preservation of local forms. Two lec and one 3-hr lab per wk. Prereq: Biol 202 or perm. (SCHELL)
- 489 Herpetology (3 cr) S (129)**
Evolution, taxonomy, natural history, biology of amphibians and reptiles. Two lec and one 3-hr lab per wk. Prereq: Biol 202. (WALLACE)
- 500 Master's Research and Thesis (cr arr) F & S (300)**
- 501 Seminar (1 cr, max 2) F & S (261-262)**
- N504 Economic Zoology (2 cr) SS (N240)**
Economic relations of animals to man; means of determining economic values; theory of control; esthetic and cultural uses of animals.
- 513 Comparative Animal Physiology (3 cr) F (210)**
Alt/yr 1969-70. Physiology, morphology, evolution, ecology of various animal groups. Prereq: 315 and perm. (FERGUSON)
- 514 Advanced Topics in Physiology (2 cr) F (211)**
Recent advances in theory and technology in selected areas of morphology and developmental anatomy. Prereq: perm.
- 533 Advanced Topics in Animal Ecology (2 cr) F (232)**
Alt/yr 1969-70. Current problems and research trends. Prereq: perm.
- 536 Hydrobiology (4 cr) F (226)**
Alt/yr 1969-70. Freshwater ecology; water chemistry, primary and secondary

production, micro-invertebrates, investigation of nearby lotic and lentic environments. Three lec and one 3-hr lab per wk; field labs. Prereq: perm. (RABE)

N537 Aquatic Biology (3 cr) SS (N227)

Problems and factors affecting populations of plants and animals in aquatic environment; sampling methods and identification of aquatic organisms. Four lec and two 3-hr labs per wk; field labs. Prereq: perm.

538 Zoogeography (2 cr) F (218)

Dynamics and causes of distribution of animals in time and space. Prereq: perm (WALLACE)

581 Advanced Topics in Ornithology (2 cr) S (230)

Alt/yrs 1969-70. Current problems and research trends. One 2-day field trip. Prereq: perm. (LARRISON)

583 Advanced Topics in Mammalogy (2 cr) S (231)

Alt/yrs 1970-71. Current problems and research trends. Two 2-day field trips. Prereq: perm. (LARRISON)

584 Ethology (2 cr) F (234)

Alt/yrs 1969-70. Function, biological significance, causation, evolution of species — typical behavior in wild animals. Two 2-day field trips. Prereq: perm. (LARRISON)

N586 Biology of Cold-blooded Vertebrates (3 cr) SS (N250)

Systematics and evolution of fishes, amphibians, reptiles. Four lec and two 3-hr labs per wk. Prereq: perm.

N588 Natural History of Vertebrate Animals (3 cr) SS (N239)

Ecological factors affecting populations and communities as demonstrated by local field studies. Prereq: perm.

599 Independent Study (1-3 cr, max 6) F & S (219-220)

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|--|--------------------------|
| (a) Animal Ecology | (i) Endocrinology |
| (b) Comparative Anatomy of Vertebrates | (j) Invertebrate Zoology |
| (c) Cytology | (k) Mammalogy |
| (d) Embryology | (l) Vertebrate Evolution |
| (e) Genetics | (m) Ornithology |
| (f) Herpetology | (n) Parasitology |
| (g) Histology | (o) Physiology |
| (h) Ethology | (p) Ichthyology |

Reading and/or research. Prereq: perm of dept.

600 Doctoral Research and Dissertation (cr arr) F & S (300)

WALLACE RESIDENCE



RESEARCH AGRICULTURAL EXTENSION EXPERIMENT STATIONS

AGRICULTURAL EXPERIMENT STATION

James E. Krause (Director), Ronald D. Ensign (Associate Director.)

IN COMPLIANCE WITH an enabling act of Congress approved March 2, 1887, the Idaho Agricultural Experiment Station became an integral part of the University at the time of its organization. The act, commonly known as the Hatch Act, defines the scope and activities of state experiment stations as follows:

That it shall be the object and duty of said experiment stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantage of rotative cropping as pursued in a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of different kinds of foods for domestic animals; the scientific and economic questions in the production of butter and cheese; and such researches or experiments bearing directly on the agricultural industry in the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories.

The Hatch Act of 1887 provided for the establishment of an agricultural experiment station at each of the land-grant colleges and the contribution of federal funds annually to the states to partially support research programs carried on by these stations. Several supplementary acts have been enacted since the Hatch Act. The 84th Congress, on August 11, 1956, passed H.R. Bill 5562 which consolidated the Hatch Act of 1887 and other supplementary laws providing for grants to the states and Puerto Rico for the support of agricultural experiment stations. This consolidation allows much simplification of accounting for expenditures of federal funds. Five separate accounts were combined into one.

The Hatch Act Amended provides for the "continuation of the agricultural research at

state agricultural experiment stations which have been supported by the Hatch Act of 1887, the Adams Act of 1906, the Purnell Act of 1925, the Bankhead Jones Act of 1935, and Title I, Section 9 of the Marketing Act of August, 1946, and acts amendatory and supplementary thereto, and to promote the efficiency of such research by a codification and simplification of such laws."

The Hatch Act Amended does not change the intent of Congress as was set forth in the original Hatch Act and succeeding acts. The allocations of federal funds are to continue on the basis of previous acts which include matching requirements and the 20 per cent marketing research requirement of funds appropriated pursuant to Section 9 of the Bankhead Jones Act. Funds received from the Hatch Act are supplemented by state appropriations for the investigation of special problems and for the maintenance of branch stations, where some of the work can be most advantageously carried on.

ORGANIZATION AND WORK

The organization of the Agricultural Experiment Station is practically the same as that which prevails in the College of Agriculture. Under the general supervision of a director, research is carried on by departments, of which there are now 12, viz: agricultural biochemistry and soils, agricultural economics, agricultural engineering, agricultural information, animal science, bacteriology, dairy science, entomology, home economics research, plant science, poultry science, and veterinary science. Each department has a broad conception of its duties and influences and is pushing actively the work it has inaugurated for the ultimate benefit of the agricultural industry it represents.

Many important lines of investigation are in progress. These include a wide range of research projects on production, marketing and utilization of agricultural products. Approximately 200 separate research projects are being actively pursued at the present time. The agricultural research program of the University is a dynamic program, and changes from year to year. As research is completed, the results are published and disseminated for public use, and new lines of investigation are begun. This research has a two-fold purpose; first, to find practical answers to problems which affect farmers or agricultural industry day-to-day operations and, second, to determine basic facts and new knowledge which may serve as the basis for answering problems which may arise in the future.

The director of the experiment station is responsible for the administration and operation of the State Seed Laboratory in Boise.

LABORATORY AND OTHER FACILITIES

The Departments of Bacteriology, Agricultural Biochemistry and Soils, Animal Science, Plant Science, Veterinary Science, Entomology, and Dairy Science have well equipped research laboratories in Life Sciences Building, Agricultural Science Building, Entomology Building, Dairy Sciences Building, and the Agricultural Education Crops and Soils Building. Agricultural engineering laboratories are located in the Agricultural Engineering Building. Greenhouse facilities are provided for such lines of investigation as require them. The college farm of 1145 acres supports splendid herds of beef and dairy cattle, hogs and sheep, from which individual animals are selected for experimental feeding purposes. This farm also provides experimental fields for the use of the Departments of Plant Science, Agricultural Biochemistry and Soils, and range and breeding pens for the Department of Poultry Science.

Farming conditions within the state are so varied that it is necessary to conduct many lines of investigation away from the central station. The branch experiment stations are conveniently located for this purpose. On the Sandpoint station, experiments designed to point the way to the profitable utilization of the cut-over and burned-over lands are in progress. The station at Aberdeen is used for experiments in crop production under irrigation. A comprehensive program of potato

and cereal research is included. The Caldwell branch station supports a dairy herd and is used for investigations in animal feeding and diversified farming. A feeding plant provides for 140 head of beef cattle and 365 head of sheep and 85 dairy stock. There is a well equipped animal disease laboratory at the Caldwell station and facilities to handle 350 sheep and 90 beef cattle for research purposes. At the branch station at Tetonia experiments are conducted in the growing of grains, grasses and potatoes, and tests of cultural practices which give promise of adaptability to elevations of more than 6,000 feet. The Tetonia branch station is the key station for production of foundation seed stocks of the cereals, potatoes and legumes. The Parma Branch Experiment Station is primarily a horticultural station at which extensive work is conducted on fruits, vegetables, vegetable seed crops and fresh market vegetables. Land was purchased for a branch station at Twin Falls in 1950. The primary purpose of this station is for research on all phases of bean production. A fruit and vegetable field station is maintained at Lewiston. Additional points of contact with agricultural problems are found on many farms of the state where cooperative work is carried on during the summer. The splendid public spirit of citizens in the several localities has made possible the work now in progress on these farms. In the work at Aberdeen, Caldwell, Parma, Twin Falls and at Tetonia, the Department of Agriculture, through its Agricultural Research Service and Soil Conservation Service, is cooperating. The experiment station actively cooperates with U.S. Sheep Experiment Station at Dubois, Idaho. The University of Idaho owns and maintains approximately 7,000 head of sheep at that station. University personnel headquartered at the Dubois station work jointly with federal personnel.

PUBLICATIONS

To disseminate research results and helpful information to the farmers of the state, the Agricultural Experiment Station issues a large number of publications each year. Each type has its specific mission. Research bulletins add to the world's permanent store of knowledge the new information coming from the Idaho studies. Experiment station bulletins are of a more popular nature, aimed at guiding individuals engaged in the state's agriculture in taking advantage of the experimental results. Research progress reports, information leaflets and the quarterly publication, *Idaho Agricultural Science*, keep the state constantly informed on the broad scope of the research program in the College of Agriculture. County agent offices throughout the state maintain a complete file of Idaho agricultural publications as well as those available from the U.S. Department of Agriculture. Although all agricultural research is conducted primarily for the benefit of those engaged in this basic industry, students in the College of Agriculture also are aided. For the most part, the men who conduct the agricultural research also teach classes. Thus the students receive in their normal classwork the latest information on research appropriate to their field of specialization.

AGRICULTURAL AND HOME ECONOMICS EXTENSION

James E. Kraus (Director), C. O. Youngstrom (Associate Director).

THE AGRICULTURAL 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 agricultural extension service concept in 1915. In 1917, additional state legislation brought county commissioner boards into the three-way partnership of financing and cooperation.

The director of extension is headquartered at Moscow. The associate director's office is in Boise.

Agricultural and home economics agents work in 42 of Idaho's 44 counties, plus the Fort Hall and Nez Perce Indian Reservations. Area agents, those who work in several adjoining counties with farmers and ranchers who produce specific crops and livestock are headquartered in Rupert, Blackfoot, Caldwell, Soda Springs, Coeur d'Alene and St. Anthony.

These 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, Aberdeen, Caldwell, Kimberly and Pocatello. These specialists, in turn, are kept up to date by research scientists of the University's College of Agriculture and the U.S. Department of Agriculture.

The educational work of the agricultural extension service is no longer only for farm families. Town and city residents benefit from information about lawn and garden care, insect control, landscaping, family health, clothing, home furnishings, nutrition and home maintenance. Low-income families receive specialized help.

More and more urban youth discover 4-H and its rewards each year. More than 20,000 young Idahoans from city and country are enrolled in 4-H Clubs supervised by over 4,000 volunteer leaders.

Idaho Extension Homemakers Council clubs are found in nearly every county. Membership totals over 20,000.

Idaho's agricultural extension service has progressed considerably since its beginning many years ago. Its programs have been adjusted, expanded, changed and enlarged always with the needs of the people in mind.

WATER RESOURCES RESEARCH INSTITUTE

C. C. Warnick (Director), R. D. Gordon (Assistant to the Director).

THIS INSTITUTE is the result of a committee appointed by former President D. R. Theophilus on June 5, 1961, to study and develop a coordinated plan for water resources policies and programs within the University with regard to research, teaching and service. The original committee was also assigned to study ways of implementing the plan by securing public, private and group participation within the State of Idaho or from outside agencies if deemed advisable.

Official action establishing the institute was taken by the Board of Regents on October 24, 1963.

The operation of the institute is principally an effort of interdisciplinary action and as such has the following objectives:

1. To increase, improve and coordinate the efforts of the various University divisions and departments concerned with water resources research by assisting in: (a) Defining problem areas; (b) encouraging and promoting team efforts between different disciplines; and (c) assisting in the planning and implementation of interdisciplinary research in cooperation with federal, state and private agencies.
2. To strengthen and coordinate undergraduate and graduate programs and course offerings so that the University can supply well-trained teachers and leaders capable of coping with the complex water problems at the local, state, regional and

national levels by: (a) encouraging the use of improved teaching techniques and the upgrading of the staff; (b) developing logical sequences of courses to maximize teaching efforts; (c) conducting interdisciplinary seminars to acquaint students and faculty with the broad aspects of water resources; and (d) bringing outstanding authorities to the campus for seminars and conferences.

3. To gather, disseminate and coordinate ideas and research findings between the University and various federal and state agencies and local and civic groups interested in water resources by: (a) publishing quality reports of findings; (b) sponsoring or appearing at meetings and workshops to serve all interests; and (c) building and maintaining a library which will be a central source of information to all concerned.

The institute was funded in January, 1965, to function with other like institutes under the federal Water Resources Research Act of 1964 (Public Law 379-88). It was established as one of the first fourteen such institutes in the nation and as such has a mission to conduct competent research in relation to water resources and to train scientists and engineers through such research.

ENGINEERING EXPERIMENT STATION

H. Sidwell Smith (Director), R. E. Warner (Associate Director).

THE ENGINEERING EXPERIMENT STATION was established to do research work in connection with engineering problems of importance to the state and region, to stimulate research activity in the faculty and among the students of the College of Engineering, and to publish the results of investigations and compilation of data of value to the citizens of the state.

The staff of the station is composed of the president of the University, the director, associate director, and various members of the faculty of the College of Engineering. The laboratories of the College of Engineering are employed in the investigations conducted by the station. All research conducted within the College of Engineering is administered by the station.

FOREST, WILDLIFE AND RANGE EXPERIMENT STATION

Ernest Wholetz, (Director), Edwin Tisdale (Associate Director), Maurice G. Hornocker (Leader, Cooperative Wildlife Research Unit), Donald W. Chapman (Leader, Cooperative Fisheries Unit).

THE RESEARCH PROGRAM of the College of Forestry, Wildlife and Range Sciences is centered in this experiment station which was established through authorization granted by the State Legislature in 1939.

PURPOSE

The experiment station is to institute and conduct investigations into problems of forest, range, wildlife and fishery management and wood products technology within the state and to disseminate to the public information so obtained. The station is to cooperate fully with all private and state and federal agencies. Authority exists for the establishment of experimental substations under approval of the Board of Regents.

ORGANIZATION AND WORK

The experiment station staff consists of the president of the University, the director, associate director, full-time members of the research staff and other faculty members and graduate fellows of the College of Forestry, Wildlife and Range Sciences on a part-time basis. The research program includes projects in all of the resource management and utilization areas mentioned above. This research work is well distributed geographically, with one or more projects in every major region of the state.

FACILITIES

The laboratories and research equipment of the College are available for the work of the station. Additional facilities of other University departments are available on a cooperative basis. The 7,200 acre University experimental forest, the Clarke-McNary nursery and the Shattuck arboretum provide additional facilities on or near the campus. Other facilities are available through cooperation with various individuals and agencies in the state, particularly the U.S. Forest Service, Bureau of Land Management and the Idaho Department of Fish and Game.

IDAHO COOPERATIVE WILDLIFE AND FISHERIES UNITS

These units exist through cooperative agreements between the University, the State Department of Fish and Game, the U.S. Bureau of Sport Fisheries and Wildlife and the Wildlife Management Institute. Under these arrangements the federal government assigns the unit leaders and assistant leaders to the University. Through the units, funds are provided for a number of research fellowships for study of wildlife and fishery problems.

PUBLICATIONS

The research results of the station are made available through the medium of station notes, papers and bulletins, and by articles in technical and popular journals and magazines.

RESEARCH COUNCIL AND RESEARCH FOUNDATION

Board of Directors, University of Idaho Research Foundation, Inc.: Melbourne L. Jackson (Chairman), Ronald D. Ensign (Vice Chairman), Edgar H. Grahm (Secretary-Treasurer).

THE RESEARCH COUNCIL was established to foster research in all legitimate ways, encourage and assist research workers, coordinate the various research programs being carried on by the University, and administer certain research funds. The University of Idaho Research Foundation, Inc., is a separate legal entity which implements the provisions of the University patent policy. Its purpose is to protect the interests

of the inventor, the public and the University, and handle inventions growing out of University research programs.

The Steering Committee of the Research Council is composed of representative Idaho citizens whose guidance and advice concerning the STAR program assures Idaho of a research program geared closely to the needs of the state. The membership of the Steering Committee is listed in Part VI of this catalog.

BUREAU OF BUSINESS AND ECONOMIC RESEARCH

David D. Kendrick (Director), Norman Nybrotten (Associate Director).

AN INTEGRAL PART of the University, the Bureau of Business and Economic Research takes responsibilities in the general area of business and economics. The bureau's work is primarily in applied research of immediate interest to the state's business and economy. Some of the work of the bureau could be classified as professional service aimed at developing the state's resources and providing some of the conditions for engaging University staff and students on the state's problems and orienting them to the economic climate.

The bureau maintains a minimum full-time staff but has a responsive flexibility which can be geared to projects undertaken. When problems submitted to the bureau result in broad projects requiring various research specialists they can usually be borrowed from other divisions of the University. In some instances this is done through inter-divisional co-operation. The availability of suitable personnel is, of course, one of the principal factors in determining whether specific work will be undertaken. The bureau is organized on the basis of projects and work underway rather than by departments.

Reports of the bureau are issued occasionally on selected subjects as conditions warrant. Publications are mainly reports of research done. There are two series of publications - the *monograph* and the *research report*. The subject matter varies. To date the principal areas have been highway economics, credit and finance, Indian affairs, taxation, employment, general statistics, and economic development.

BUREAU OF EDUCATIONAL RESEARCH AND SERVICE

Everett V. Samuelson (Director), Edward L. Kelly (Associate Director).

THE PURPOSE of the Bureau of Educational Research and Service, College of Education, is multi-dimensional. First, it is to aid in the development of a precise and empirically verified body of knowledge uniquely related to education as a discipline, that is, to the teacher-learner situation. To this end, both theoretical and applied research is carried on within the framework of the bureau. Included as a basic part of this research function is the relating of existing research findings to problems pertaining to the development of educational models and to the structure of teaching. Second, it is to conduct descriptive studies relating to such things as school administration, curriculum, personnel practices, student accomplishment, and educational innovations. The focus of such studies is on the compilation of accurate and useful information about some aspect

of public education. The evaluation and implementation of research findings is also included in this function. A third purpose is to cooperate with faculty members, with existing educational agencies, and with local school districts in cooperative research projects and in program evaluation. Thus, the bureau provides an organization framework for the study and improvement of public education particularly within the State of Idaho.

The associate director of the bureau also serves as the editor of the *College of Education Record*, a quarterly publication of the College of Education. This publication is currently sent to approximately one thousand libraries throughout the nation.

The rapid expansion of knowledge, the involvement of the federal government in public education, and the increased activities of private foundations made it imperative that a bureau of educational research and service be organized. Through the work of this bureau, the College of Education and the University of Idaho can more effectively serve the schools of the state and of the nation.

IDAHO BUREAU OF MINES AND GEOLOGY

Rolland R. Reid (Director).

THE STATE STATUTES under which the Idaho Bureau of Mines and Geology is established and operated specify that the bureau's office and headquarters shall be at the University of Idaho and that the dean of the College of Mines is director of the bureau. The bureau 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. Microscopes, black lights, Geiger counters and similar instruments required for mineral identification are used.

BUREAU OF PUBLIC AFFAIRS RESEARCH

Boyd A. Martin (Director), Herbert S. Duncombe (Associate Director), Glenn W. Nichols (Assistant to the Director).

THE BUREAU OF PUBLIC AFFAIRS RESEARCH was established in 1959 as a unit of the Department of Political Science in the College of Letters and Science. In its nine years of existence, the bureau has completed 15 major research studies: seven on municipal government in Idaho, one on county government, four on state government, and three compilations of election statistics. Two additional studies on city government are

now nearing completion. In addition the bureau has provided consultative services for state training institutes for local officials. In December and January of 1967 the bureau sponsored a series of 2-day institutes for city mayors and councilmen at four locations around the state. Similar institutes will be held for county commissioners and clerks and for city clerks. The bureau maintains a current library of publications from Idaho and other states which is maintained through reciprocal exchange arrangements with other agencies.

In addition to its regular appropriations for its research and consultative activities, the bureau is financed in part by grants from state and federal sources. During 1968-69 the bureau was financed 26 per cent from regular state appropriations, 28 per cent from short-term applied research grants, and 43 per cent from federal funds. The bureau now employs a full-time assistant to the director, an associate director during the summer and a part-time secretary. Other consultants and research assistants are employed as needed.





FACULTY AND STAFF COUNCILS ACADEMIC STANDINGS ASSOCIATION AFFILIATIONS STATISTICS

GENERAL FACULTY AND STAFF OF THE UNIVERSITY

The date following each name indicates the beginning of service with the University.

THE FACULTY AND FACULTY MEMBERS EMERITI

- ABBASI, ALI D., 1957, *Assistant Professor of Engineering Science and Mechanical Engineering; B.S. (Ch.E.), Iowa; M.S.(Ch.E.), Idaho.*
- ALDEN, HOWARD R., 1963, *Associate Professor of Forestry (Recreation); B.S.(Ed.), M.S.(Bot.), Maine.*
- ALLER, ALVIN R., 1959, *Associate Professor of Botany; B.S., Bethany; M.S., Kansas State; Ph.D., Oregon State.*
- ALLER, FLORENCE D., 1962, *Associate Professor of Home Economics; Acting Head, Department of Home Economics; B.A., Bethany-Peniel, M.S., Oregon State; Ed.D., Idaho.*
- AMOS, HAROLD C., 1954, *Assistant Professor of Mechanical Engineering; B.S.(M.E.), Nebraska; M.S.(M.E.), Idaho.*
- ANDEREGG, DOYLE E., 1967, *Professor of Biology; Head, Department of Biological Sciences; B.Sc., M.S., Ph.D., Ohio State.*
- ANDERSON, GUY R., 1946, *Professor of Bacteriology; Bacteriologist; B.S., M.S., Idaho; Ph.D., Washington State.*
- ANDERSON, RUTH, 1946, *Associate Professor of Office Administration; B.A., M.S., Idaho.*
- ANDERSON, THOMAS L., 1962, *Associate Professor of Civil Engineering; B.S.(C.E.), M.S.(C.E.), Idaho; Ph.D., Colorado.*
- ARAJI, AHMED A., 1968, *Assistant Professor of Agricultural Economics; Assistant Agricultural Economist; B.S., M.S., Nebraska; Ph.D., Missouri.*
- ARDREY, WILLIAM B., 1939, *Professor of Veterinary Science; Veterinary Microbiologist; B.S., Monmouth; M.S., Ph.D., Michigan State.*
- ATKINSON, NANCY I., 1943, *Head, Catalog Department, University Library (equivalent rank: Associate Professor); A.B., A.B.(L.S.), Michigan.*
- AUGUSTIN, JORG A.L., 1968, *Associate Research Professor of Agricultural Biochemistry, Aberdeen; Diplomierter Ingenieur Agronom, Eidgenoessische Technische Hochschule, Zurich; M.S., Illinois; Ph.D., Michigan State.*
- AVERY, JASPER R., 1959, *Assistant Professor of Mechanical Engineering; B.S.(M.E.), Idaho.*
- AYER, LARRY LEE, 1968, *Instructor in Radio-Television; Engineering Technician, Program Director, KUID-FM; B.A., Idaho.*
- BAILEY, JAMES W., 1953, *Associate Professor of Veterinary Science; Associate Veterinarian; B.Ed., Western Illinois; D.V.M., Texas A&M.*
- BAILY, EVERETT M., 1961, *Assistant Professor of*

- Electrical Engineering; B.S.(E.E.), M.S.(E.E.), Idaho; Ph.D., Stanford.*
- BAKER, GEORGE O., 1935, *Professor Emeritus of Soils; B.S., M.S., Washington State.*
- BAKER, WILLIAM H., 1948, *Professor of Botany; Chairman, Botany; B.S., M.S., Ph.D., Oregon State.*
- BANKS, WILLIAM C., 1927, *Professor Emeritus of English; B.A., M.A., Washington.*
- BARBER, DAVID S., 1968, *Assistant Professor of English; A.B., Hamilton; M.A., Ph.D., Michigan.*
- BARBUT, EROL, 1967, *Assistant Professor of Mathematics; B.A., California; M.A., Ph.D., California (River-side).*
- BARNES, WILLARD, 1965, *Assistant Professor of History; B.S.(Ed.), M.S.(Ed.), Idaho; Ph.D., Washington State.*
- BARNES, WILLIAM P., 1957, *Professor of Mechanical Engineering; Chairman, Nuclear Engineering; B.S.(M.E.), Idaho; M.M.E., Yale; P.E.*
- BARNHART, JOHN L., 1934, 1956, *Associate Professor of Dairy Science; Associate Dairy Scientist; B.S., Pennsylvania State; M.S., West Virginia, Ph.D., Pennsylvania.*
- BARR, WILLIAM F., 1947, *Professor of Entomology; B.S., M.S., Ph.D., California.*
- BARRUS, JAMES L., 1949, *Assistant Professor of Chemistry; Director, General Chemistry Laboratories; B.S., Wyoming; M.S., Idaho.*
- BARTELL, CHARLES G., 1950, *Professor of Architecture, B.Arch., Washington; M.S., Columbia.*
- BAUER, LeROY O., 1956, *Professor of Music; B.S.(Mus.Ed.), Wisconsin (Milwaukee); M.Mus., Northwestern.*
- BAUMGARDNER, CARL A., 1967, *Assistant Professor of Physics; B.S., Detroit; M.S., Ph.D., Michigan State.*
- BAUMGARTNER, MYRON R., 1966, *Associate University Physician; B.A., M.D., Ohio State.*
- BAZAN, MARIA E., 1967, *Instructor in Foreign Languages; B.A., M.A., Texas Women's University, Denton.*
- BEATTIE, MABLE W., 1925, *Professor Emerita of Foreign Languages; B.A., Idaho; M.A., Radcliffe.*
- BECK, RICHARD J., 1957, *Associate Director of Libraries (equivalent rank: Associate Professor); B.A., St. Thomas; B.S.(L.S.), M.A., Minnesota.*
- BECK, SIDNEY M., 1951, *Associate Professor of Bacteriology; Associate Bacteriologist; A.B., M.A., Brigham Young; Ph.D., Pennsylvania State.*
- BELL, GEORGE M., 1949, *Professor of Law; B.S., Utah State; J.D., George Washington.*
- BELL, ROY A., 1950, *Associate Professor of Photography; B.A., M.A., Idaho.*
- BELL, T. DONALD, 1957, *Professor of Animal Science; Head, Department of Animal Science; Animal Scientist; B.S., M.S., Idaho; Ph.D., Wisconsin.*
- BELL, THOMAS O., 1966, *Associate Professor of Education; Associate Dean, College of Education; B.A., M.S., Idaho State; Ed.D., Utah State.*
- BELLINGER, GLADYS I., 1960, *Professor of Home Economics; B.S., Kansas State Teachers; M.S., Ph.D., Cornell.*
- BELT, GEORGE H., Jr., 1965, *Associate Professor of Forestry (Watershed); B.S., North Carolina State; M.F., Yale; D.F., Duke.*
- BENSON, JIM A., 1967, *Research Associate in Agriculture, Sandpoint; B.S., M.S., Tennessee.*
- BERG, JOHN A., 1968, *Instructor in Architecture; B.A., Iowa State; B.Arch., Massachusetts Institute of Technology.*
- BERGESON, DONALD E., 1966, *Assistant Professor of Architecture; B.S., Colorado.*
- BERGSTROM, EDWARD A., 1967, *Student Counselor; B.S., M.Ed., Washington State.*
- BERMAN, HERBERT A., 1952, *Professor Emeritus of Law; A.B., LL.B., Harvard.*
- BERRY, RAY M., 1946, *Professor Emeritus of Education; A.B., Illinois College; M.A., Teacher's College, Columbia; Ed.D., Stanford.*
- BETTS, EDITH, 1951, *Professor of Physical Education; Chairman, Physical Education for Women; B.S., Wisconsin; M.S., Smith; Ph.D., Oregon.*
- BEVAN, ROLAND C., 1946, *Associate Professor Emeritus of Agricultural Economics; B.S., M.S., Minnesota; Ph.D., Illinois.*
- BIE, WENDY A., 1968, *Instructor in English; B.A., Iowa; M.A., Idaho.*
- BIGGAM, WILLIAM R., 1959, *Professor of Industrial Education; Chairman, Industrial Education; B.S., Minnesota (Duluth); M.A., Minnesota; Ed.D., Bradley.*
- BILLINGSLEY, WILLIAM A., 1954, *Professor of Music; B.Mus.Ed., M.Mus., Drake.*
- BISHOP, GUY W., 1957, *Associate Professor of Entomology; Associate Entomologist; B.S., M.S., Oregon State; Ph.D., Washington State.*
- BIZEAU, ELWOOD G., 1967, *Assistant Professor of Wildlife Management; Assistant Leader, Idaho Cooperative Wildlife Research Unit; B.S., Oregon State; M.S.(For.), Idaho.*
- BJORN, THEODORE C., 1966, *Associate Professor of Fishery Management; Assistant Leader, Idaho Cooperative Fishery Unit; B.S., Utah State; M.S., Idaho; Ph.D., Utah State.*
- BLACK, ROBERT E., 1954, *Associate Research Professor of Poultry Science; Extension Poultry Specialist; B.S.A. Arkansas; M.A., Idaho.*
- BLANTON, PAUL L., 1958, *Associate Professor of Architecture; B.S., Idaho; M.Arch., California.*
- BLOOMSBURG, GEORGE L., 1961, *Professor of Agricultural Engineering and Engineering Science; Chairman, Engineering Science; B.S.(Ag.E.), M.S.(Ag.E.), Idaho; Ph.D., Colorado State; P.E.*
- BOAS, RUTH H., 1958, *Assistant Professor Emerita of English; B.A., M.A., Idaho.*
- BOBECK, GENE E., 1967, *Assistant Professor of Metallurgy; B.A., Knox; M.S., Iowa State.*
- BOBISUD, LARRY E., 1967, *Assistant Professor of Mathematics; B.S., College of Idaho; M.S., Ph.D., New Mexico.*
- BOE, ARTHUR A., 1967, *Assistant Professor of Horticulture; Assistant Horticulturist; B.S., Ph.D., Utah.*
- BOND, JOHN G., 1968, *Associate Professor of Geology; Senior Geologist, Idaho Bureau of Mines and Geology; B.S., Idaho; M.S., Ph.D., Washington.*
- BONDURANT, CECIL W., 1962, *Instructor in Radio-Television; Senior Staff Engineering Technician; B.S., American Television Institute of Technology.*
- BOONE, LALIA P., 1965, *Professor of English; B.A., East Texas State; M.A., Oklahoma; Ph.D., Florida.*

- BOPP, GORDON R., 1963, Associate Professor of Chemical Engineering; B.S.(Ch.E.), M.S.(Ch.E.), Colorado; Ph.D., Stanford.
- BORNING, BERNARD C., 1949, Professor of Political Science; B.A., Ph.D., Minnesota.
- BOTSFORD, JAMES L., 1949, Associate Professor of Mathematics; A.B., Washington; Ph.D., California Institute of Technology.
- BOWERS, ALFRED W., 1949, Professor Emeritus of Anthropology and Sociology; B.S., Beloit, M.S., Ph.D., Chicago.
- BOYER, WILLIAM H., 1930, Professor Emeritus of Psychology; B.S., M.S., Idaho; Ph.D., George Peabody.
- BOYLE, F.J. (Packey), 1955, Instructor Emeritus in Physical Education; Doctor of Osteopathy, Astill College; Physio-Therapy, Dr. Swanson's Academic College.
- BRAY, R. BRUCE, 1961, Associate Professor of Music; Faculty Editor; B.A., M.Mus., Oregon.
- BROCKELBANK, WILLIAM J., 1943, Professor Emeritus of Law; A.B., Haverford; LL.B., Harvard, LL.M., Montpelier; Docteur en Droit, Paris.
- BROCKWAY, CHARLES E., 1965, Assistant Research Professor of Civil Engineering; B.S.(C.E.), Idaho; M.S.(C.E.), California Institute of Technology.
- BROGLY, EDWARD R., 1967, Assistant Professor of Psychology; B.S., M.S., Northern Illinois; Ph.D., Iowa.
- BROWNE, MICHAEL E., 1967, Professor of Physics; Head, Department of Physics; B.S., Ph.D., California (Berkeley).
- BRUSVEN, MERLYN A., 1965, Assistant Professor of Entomology; Assistant Entomologist; B.S., M.S., North Dakota State; Ph.D., Kansas State.
- BULL, RICHARD C., 1967, Assistant Professor of Animal Science; Assistant Animal Scientist; B.S., M.S., Colorado State; Ph.D., Oregon State.
- BURCAW, GEORGE E., 1966, Assistant Professor of Museology; Director, University Museum; B.A., Maryville.
- BURLINGAME, E. MILDRED, 1942, Associate Professor Emerita of Psychology; A.B., M.A., Stanford; Ph.D., Minnesota.
- BURLISON, PRUDENCE B., 1962, Lecturer in English; B.A., Western State College; M.A., Idaho.
- BUSH, CORLANN GEE, 1967, Instructor in English; B.A., Bowling Green State; M.S., Montana State.
- BYERS, ROLAND O., 1954, Professor of General Engineering; Chairman, General Engineering; B.S., M.S., Ohio.
- BYRD, WILLIAM A., 1965, Assistant Professor of Radio-Television; Coordinator, Instructional TV; Production and Promotion Director, KUID-TV; B.A., Whitman; M.S., Syracuse.
- CADY, LOUIS C., 1922, Professor Emeritus of Chemistry; Dean Emeritus, Graduate School; B.S.(Ch.E.), M.S., Idaho; Ph.D., Wisconsin.
- CALDWELL, HARRY H., 1948, Professor of Geography; Chairman, Geography; B.A., Clark, M.A., Nebraska; Ph.D., Clark.
- CALVERT, JAMES, 1967, Assistant Professor of Mathematics; A.B., California; M.A., Ph.D., California (Davis).
- CAMPBELL, COLIN, 1962, Catalog Librarian (equivalent rank: Instructor); B.A., New Hampshire; M.L.S., Rutgers.
- CAMPBELL, HOWARD E., 1963, Professor of Mathematics; Head, Department of Mathematics; B.S., M.S., Ph.D., Wisconsin.
- CARLSON, LAURANCE B., 1968, Assistant Professor of Special Education; B.A., Colorado State; M.Ed., Montana; Ed.D., Colorado State (Greeley).
- CARPENTER, GENE PAUL, 1966, Assistant Research Professor of Entomology, Aberdeen; B.S., Oklahoma State; M.S., Ph.D., Oregon State.
- CARTER, LOUISE A., 1923, Dean of Women Emerita; B.A., Washington; M.A., Columbia.
- CARTER, SHERMAN F., 1969, Professor of Business Administration; Financial-Administrative Vice President; B.S., Georgia, M.B.A., Syracuse; Ph.D., The American University.
- CHAN, SAMUEL S.M., 1963, Assistant Professor of Mining Engineering; B.S., Cheng Kung; M.S.(Min.E.), M.S.(Geol.), Missouri School of Mines & Metallurgy; Ph.D., Idaho.
- CHAPIN, ZAYE, 1968, Associate Professor of Sociology and Social Work; B.A., California (Los Angeles); M.S.W., Southern California.
- CHAPMAN, DONALD W., 1964, Professor of Fishery Management; Leader, Idaho Cooperative Fishery Unit; B.S., M.S., Ph.D., Oregon State.
- CHAVEZ, EDMUND M., 1951, Associate Professor of Drama; Head, Department of Drama-Speech; B.A., Southwest Texas State; M.F.A., Texas.
- CHERRINGTON, VIRGIL A., 1928, Professor of Bacteriology; Head, Department of Bacteriology; Bacteriologist; B.S., Iowa State; M.S., Idaho, Ph.D., Iowa State.
- CHRISTENSON, CHARLES O., 1964, Assistant Professor of Mathematics; A.B., A.M., Kansas; Ph.D., New Mexico State.
- CHRISTIAN, ROSS E., 1956, Professor of Animal Science; Animal Scientist; B.S., Pennsylvania State; M.S., Ph.D., Wisconsin.
- CHRISTIANSON, OSCAR O., 1949, Associate Professor of Bacteriology, St. Luke's Hospital, Spokane, Wn.; A.B., St. Olaf; M.D., Rush Medical College.
- CHRYSLER, RUSSELL L., 1959, Professor of Marketing; B.B.A., M.A., Minnesota; Ph.D., Northwestern.
- CICHANSKI, GERALD, 1968, Assistant Professor of Architecture; B.Arch., Ohio State; M.Arch., Washington.
- CLARK, ROBERT W., 1956, Associate Professor of Accounting; B.S.(Bus.), M.S.(Bus.), Idaho; C.P.A.
- CLIFTON, DONALD F., 1957, Professor of Metallurgy; B.S., Michigan College of Mining and Technology; Ph.D., Utah.
- CLYDE, PATRICIA M., 1968, Instructor in Education; Associate Director, Upward-Bound Program; B.S.(Ed), M.Ed., Idaho.
- COLLETTE, JEAN, 1931, Professor Emerita of Dramatics; B.A., M.A., Idaho.
- COLLIER, REX M., 1966, Professor of Psychology; Chairman, Clinical Psychology Training Program; B.A., Iowa State; M.S., Ph.D., Northwestern.
- CONDER, ROBERT A., 1968, Assistant Professor of Naval Science; Lt.; B.A.(Ed.), Western Colorado State.
- CONDITT, PAUL C., 1961, Head Acquisitions Department, University Library (equivalent rank: Assistant Professor); B.A., Trinity; M.S.(L.S.), Columbia.

- CONE, W.H. 1927, *Professor Emeritus of Chemistry*; B.S., M.S., Idaho; Ph.D., Washington.
- CONWAY, RALPH E. 1966, *Instructor in Journalism*; A.B., Portland (Ore.); A.M., Stanford.
- COOLEY, JAMES H. 1957, *Professor of Chemistry*; B.A., M.S., Middlebury; Ph.D., Minnesota.
- COONROD, ROBERT W. 1969, *Professor of History, Vice President for Academic Affairs*; B.S., Southwest Missouri State; M.A., Ph.D., Stanford.
- COOPER, SHARON J. 1968, *Instructor in Office Administration*; B.A., M.A.T., Washington State.
- COREY, GILBERT L. 1949-1954; 1957, *Professor of Agricultural Engineering; Chairman, Department of Agricultural Engineering; Agricultural Engineer*; B.S., M.S., Ph.D., Colorado State; P.E.
- COUCH, JAY E. 1967, *Area Supervisor of Student Teaching, North Idaho*; B.S.(Ed.), M.Ed., Idaho.
- COULTER, EDWIN F. 1967, *Assistant Science/Technology Librarian (equivalent rank: Instructor)*; B.A., Wilamette; M.L.S., California.
- COWIN, CLETUS C. 1945, *Instructor Emeritus in Chemistry*; B.S., William Jewell, M.S., Idaho.
- CRANDALL, JAMES E. 1967, *Associate Professor of Psychology*; B.A., M.P.S., Colorado; Ph.D., Oregon.
- CRANE, JIMMIE M. 1966, *Research, Associate in Plant Sciences*; B.S., Idaho.
- CROSS, BERT C. 1962, *Associate Professor of Journalism; Chairman, Journalism*; B.A., Washington; M.S., Oregon.
- CROWLEY, H. WARD. 1956, *Professor of Mathematics; Director, Computer Center*; B.A., M.A., Washington State; Sc.M., Brown; Ph.D., Washington State.
- CUNNINGHAM, HELEN H. 1961, *Assistant Research Professor of Home Economics Research*; B.S., Idaho; M.S., Iowa State.
- CUSHMAN, JOHN H. 1919, *Professor Emeritus of English*; B.A., Brown; M.A., Harvard.
- CVANCARA, JOSEPH G. 1968, *Associate Professor of Agricultural Education*; B.S., North Dakota State; M.S., Ph.D., Minnesota.
- DACRES, GERALDINE A. 1959, *Assistant Professor of Office Administration*; B.S., M.S., Idaho.
- DAHMEN, JEROME J. 1947, *Research Professor of Animal Science; Superintendent, Caldwell Branch Experiment Station; Extension Animal Scientist*; B.S., Idaho; M.S., Ph.D., Oregon State.
- DALLIMORE, CLARENCE E. 1955, *Assistant Research Professor of Plant Pathology*, Aberdeen; B.S., Utah State; M.S., Nebraska.
- DALKE, PAUL D. 1947, *Professor Emeritus of Wildlife Management*; B.S.F., M.S.F., Ph.D., Michigan.
- DAVEY, HARRY E., Jr., 1961, *Dean of Men*; B.S., U.S. Naval Academy; M.Ed., Idaho.
- DAVIS, JACK L. 1967, *Assistant Professor of English*; B.A., M.A., Washington State; Ph.D., New Mexico.
- DAVIS, JAMES R. 1968, *Assistant Research Professor of Plant Pathology*, Aberdeen; B.A., M.S., Ph.D., California.
- DAVIS, JOSEPH T., Jr., 1969, *Assistant Professor of Aerospace Studies, Capt.*; B.S.(For.), Georgia.
- DAVIS, KAREN R. 1969, *Assistant Research Professor of Home Economics Research*; B.S., M.S., Wyoming.
- DAVIS, LAWRENCE W. 1968, *Assistant Professor of Physics*; B.A., Pomona; M.S., California Institute of Technology; Ph.D., Stanford.
- DAY, RICHARD L. 1961, *Associate Professor of Geography*; B.A., M.A., Clark; Ph.D., Illinois.
- DEAN, LESLIE L. 1950, *Research Professor of Plant Pathology*, Twin Falls; B.S., M.S., Idaho; Ph.D., Purdue.
- DECKER, CHARLES O., 1946, *Dean of Students*; B.A., Antioch; M.A., Northwestern.
- DETERS, MERRILL E. 1940, *Professor of Forestry*; B.S., M.S., Ph.D., Minnesota.
- DEUTCHMAN, PHILIP A. 1968, *Assistant Professor of Physics*; B.S., M.S., New Mexico; Ph.D., Oregon.
- DICK, KENNETH A. 1931, *Professor Emeritus of Accounting; Vice President Emeritus for Financial Affairs*; B.S.(Bus.), M.S.(Bus.), Idaho; M.B.A., Stanford; C.P.A.
- DIKER, PAUL F. 1966, *Assistant Professor of Mathematics*; B.S., Dayton; M.S., Ph.D., Michigan State.
- DIXON, JOHN E. 1954, *Associate Professor of Agricultural Engineering; Associate Agricultural Engineer*; B.S.(Ag.), B.S.(Ag.E.), Oregon State; M.S.(Ag.E.), Idaho, P.E.
- DOBLER, CLIFFORD I. 1941, *Professor of Business Law*; B.S., LL.B., M.A., Idaho.
- DOTTS, CHARLES S. 1962, *Associate Professor of Architecture*; B.A., J.D., B.S.Arch., Kansas; M.Arch., Illinois.
- DUNCANSON, DONALD L. 1965, *Professor of Education*; B.S., Wisconsin State Teacher's College, M.A., Ph.D., Minnesota.
- DUNCOMBE, HERBERT S. 1962, *Professor of Political Science; Associate Director, Bureau of Public Affairs Research*; B.A., Yale; M.A., Syracuse, Ph.D., Washington.
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- WATERS, NORMAN D., 1957, *Assistant Research Professor of Entomology*; A.A., Sacramento State; B.S., Ph.D., California.
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- WEBBERT CHARLES A., 1948, *Head, Department of Special Collections and Archives, University Library (equivalent rank: Associate Professor)*; B.A., Washington; B.S.(L.S.), George Peabody; M.S., Illinois.
- WELTZIN, J. FREDERICK, 1944, *Professor Emeritus of Education*; *Dean Emeritus, College of Education*; B.A., B.S.(Ed.), M.S.(Ed.), Ph.D., D.Hum., North Dakota.
- WESTERLUND, ARNOLD S., 1949, *Associate Professor of Art*; B.A., M.A., Idaho.
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- WIESE, ALVIN C., 1946, *Professor of Agricultural Biochemistry*; *Head, Department of Agricultural Biochemistry and Soils*; *Agricultural Biochemist*; B.S., M.S., Ph.D., Wisconsin.
- WILDE, WILLARD J., 1924, *Professor Emeritus of Accounting*; B.S., Utah; M.S., California; C.P.A.
- WILLETT, JAMES D., 1968, *Assistant Professor of Chemistry*; A.B., California; Ph.D., Massachusetts Institute of Technology.
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- WILLIAMS, LARRY G., 1956, *Associate Professor of Agricultural Engineering*; *Associate Agricultural Engineer*; B.S.(Ag.E.), M.S.(Ag.E.), Idaho; P.E.
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- WILLMES, HENRY, 1968, *Assistant Professor of Physics*; B.S., M.A., Ph.D., California (Los Angeles).
- WINKLER, FRED H., 1955, *Professor of History and Political Science*; A.A., A.B., M.A., Florida; Ph.D., Northwestern.
- WINNER, HERBERT A., 1939, *Professor Emeritus of Agricultural Education*; B.S., Montana State; M.S., Iowa State.
- WISE, RALPH M., 1960, *Associate Research Professor of Agricultural Chemistry*; *Aberdeen*; B.S., McPherson.
- WITHERS, RUSSELL V., 1961, *Associate Professor of Agricultural Economics*; *Associate Agricultural Economist*; B.S., M.S., Utah State; Ph.D., Cornell.
- WOHLETZ, ERNEST W., 1937, *Professor of Forestry*; *Dean, College of Forestry, Wildlife and Range Sciences*; *Director, Forest, Wildlife and Range Experiment station*; B.S., M.S., California.
- WOLF, VIRGINIA, 1964, *Assistant Professor of Physical Education*; B.A., Earlham; M.S., Colorado.
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- WOODBURY, GEORGE W., 1935-1943; 1948, *Professor Emeritus of Horticulture*; *Horticulturist Emeritus*; B.S., M.S., Michigan State; Ph.D., Cornell.
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WOOLUMS, EDWARD C., 1962, *Associate Professor of Education*; B.A., M.Ed., Ed.D., Colorado.

WORKS, D WILLIAM, 1956, *Associate Research Professor of Agricultural Engineering; Director, Farm Electrification Project*; B.S.(Ag.E.), Oregon State; M.S.(Ag.E.), Idaho; P.E.

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FENWICK, HARRY S., 1956, *Extension Plant Pathologist*; B.S., M.S., Montana State; Ph.D., Oregon State.

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- GRAY, CHARLOTTE L., 1958, *Home Economics Agent, NezPerce County, Lewiston*; B.S.(H.Ec.), Idaho.
- GREENWELL, DON A., 1957, *County Extension Agent, Valley County, Donnelly*; B.S., M.S., Idaho.
- GROSS, ROBERT J., 1968, *County Extension Agent, Washington County, Weiser*; B.S., Oregon State.
- HACKLER, FRANK E., 1946, *County Extension Agent, Washington County, Weiser*; B.S., Oregon State.
- HALL, GRANT B., 1950, *Central District Extension Agent Supervisor, Boise*; B.S.(Ag.), M.Ag., Idaho.
- HALL, RICHARD F., 1967, *Extension Veterinarian*; B.S., Idaho; D.V.M., Washington State.
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- HANSON, D. JAY., 1968, *County Extension Agent, Bonneville, Idaho Falls*; B.S., Idaho.
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- HIGGINS, ROBERT E., 1946, *Extension Agronomist, Boise*; B.S.(Ag.), M.S.(Ag.), Idaho.
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- HOLE, DOROTHY S., 1957, *Assistant State 4-H Leader*; B.S., Oregon State; M.Ed., Colorado State.
- HOMAN, HUGH W., 1965, *Area Agent-at-Large, Canyon, Payette and Owyhee Counties, Caldwell*; B.S., M.S., Idaho.
- HOOPER, GRAHAM E., 1968, *County Extension Agent, Gooding County, Gooding*; B.S., California.
- HOPKINS, IVAN C., 1959, *County Extension Agent, Lincoln County, Shoshone*; B.S.(Ag.), Idaho.
- HORN, ANTON S., 1946, *Extension Horticulturist, Boise*; B.S.(Ag.), Kansas State; M.S., Illinois.
- HOVEY, BETTE A., 1968, *Home Economics Agent, Power County, American Falls*; B.S., Idaho State.
- JACOBS, FRANK H., 1954, *County Extension Agent, Madison County, Rexburg*; B.S.(Ag.), Idaho.
- JENSEN, PANSY., 1959, *Home Economics Agent, Valley County, Donnelly*; B.S., Linfield.
- JOHANNESSEN, ERLING J., 1945, *County Extension Agent, Gem County, Emmett*; B.S., Idaho.
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- JOHNSON, JAMES L., 1962-1964; 1966, *Agricultural Editor*; B.A., M.Ex., Washington State.
- JOHNSON, MAURICE E., 1958, *Assistant State 4-H Club Leader*; B.S.(Ag.), M.S.(Ag.), Idaho.
- JORDAN, MARILYN E., 1967, *Home Economics Agent, Elmore county, Mountain Home*; B.S., Iowa State; M.S., Oregon.
- JUDD, HARRY L., 1955, *County Extension Agent, Benewah County, St. Maries*; B.S., Idaho.
- KAMBITSCH, R. LOREN., 1946, *County Extension Agent, NezPerce County, Lewiston*; B.S., Idaho.
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- KOESTER, EDWARD F., 1950, *County Extension Agent, Gooding County, Gooding*; B.S., M.S., Idaho.
- KOHL, FRED E., 1950, *Southwestern District Agent Supervisor, Boise*; B.S.(Ag.), Idaho; M.S., Ph.D., Wisconsin.
- KUNKEL, GLENN R., 1956, *County Extension Agent, Fort Hall Indian Reservation, Blackfoot*; B.S., Idaho.
- LARSEN, DORRELL C., 1956, *Extension Irrigationist, Boise*; B.S., Idaho; P.E.
- LARSON, KAREN F., 1968, *Home Economics Agent, Lewis County, NezPerce*; B.S., Oregon State.
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- LINFORD, BLAINE., 1961, *County Extension Agent, Canyon County, Calawell*; B.S., Wyoming.
- LONG, RAYMOND A., 1961, *Assistant Seed Analyst, Boise*; B.S., Iowa State.
- LOUCKS, ROBERT R., 1967, *County Extension Agent, Camas County, Fairfield*; B.S., Idaho.
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- McCANDLESS, CAROL M., 1955, *Home Economics Agent, Jefferson County, Rigby*; B.S., Utah State.
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- MURRAY, GLEN A., 1967, *Extension Agronomist*; B.S., M.S., Montana State; Ph.D., Arizona.
- NESBITT, SUSAN C., 1968, *Home Economics Agent, Payette County, Payette*; B.S., Idaho; M.S., Washington State.
- NEWMAN, CARA Z., 1948-1953; 1954-1957; 1967, *Home Economics Agent, Madison County, Rexburg*; B.S., Utah State.
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- PARKS, FRANKLIN P. 1966. *Extension Associate*; B.S., M.S., Idaho.
- PATTERSON, DEBRA. 1968. *Home Economics Agent, Clearwater County, Orofino*; B.S., Texas Technological.
- PEEBLES, STEPHEN L. 1960. *County Extension Agent, Clark County, Dubois*; B.S.(Ag.), Idaho.
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- PLETCHER, PEGGY. 1968. *Home Economics Agent, Ada County, Boise*; B.S., Baylor.
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- PRIEST, WILMER G. 1946. *County Extension Agent, Jerome County, Jerome*; B.S., Idaho.
- REED, ALICE M. 1966. *Home Economics Agent, Twin Falls County, Twin Falls*; B.S., Idaho.
- RENBURG, CHARLES L. 1954. *County Extension Agent, Bingham County, Blackfoot*; B.S.(Ag.), M.S.(Ag.), Idaho.
- REXFORD, VILLA R. 1962-1964; 1965. *Home Economics Agent, Gem County, Emmett*; B.S., M.S., Oregon State.
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- ROYLANCE, HOWARD B. 1950. *Extension Agronomist, Boise*; B.S.(Ag.), M.S.(Ag.), Idaho.
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- STEPHENS, DOROTHY N. 1939. *State Home Economics Leader, Boise*; B.S.(H.Ec.), Idaho; M.S., New York.
- STRANAHAN, CLYDE H. 1943. *County Extension Agent, Kootenai County, Coeur d'Alene*; B.S.(Ag.), Idaho.
- STUDER, BEN W. 1960. *County Extension Agent, Boundary County, Bonners Ferry*; B.S.(Ag.), Idaho.
- SWARTLEY, HAROLD W. 1960. *State Seed Analyst, Boise*; B.S.(Ag.), Pennsylvania State; M.S.(Ag.), Kansas State.
- TANKERSLEY, HOWARD C. 1960. *Rural Resources Leader, Boise*; B.S., Idaho.
- TAYLOR, ROY E. 1968. *Extension Agricultural Engineering Technologist*; B.S., Idaho; M.T.P.S.(Sc.Ed.), Idaho State.
- THOMAS, CHARLES M. 1959. *Acting State 4-H Club Leader*; B.S., Idaho.
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- WELLS, WADE G. 1934. *Extension Animal Scientist, Boise*; B.S., Idaho.
- WESTON, MILTON B. 1944. *County Extension Agent, Bingham County, Blackfoot*; B.S., Utah State.
- WHITE, DONALD R. 1968. *County Extension Agent, Kootenai County, Coeur d'Alene*; A.B., Colby College; B.S., Oregon State.
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- FALER, KENNETH T., 1962, *Affiliate Professor of Chemistry; B.S., Idaho State; Ph.D., California.*
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KOPPANG, MILTON, *Clearwater Protective Association, Orofino.*

LITTLE, WALTER, *Idaho Cattlemen's Association, New Plymouth.*

McKEAN, HERBERT B., *Vice-President, Research and Development, Potlatch Forests, Inc., Lewiston.*

MILLER, W. D., *Resident Director, Educational Program, National Reactor Testing Station, Idaho Falls.*

MORGAN, LEE T., *Soil Conservation Service, Boise.*

PALMER, JENKINS, *President, Idaho Cattlemen's Association, Malad.*

PECHANEC, JOSEPH F., *Director, Intermountain Forest and Range Experiment Station, Ogden, Utah.*

PEDERSEN, S. E. ("EDDIE"), *Mayor, Idaho Falls.*

PIERCE, JACK, *Chairman, Range Use Coordinating Committee, Idaho Cattlemen's Association, Malad.*

RAHM, NEAL M., *Regional Forester, U.S. Forest Service, Missoula, Mont.*

RAUCH, GEORGE, *Vice President, Potlatch Forests, Inc., Lewiston.*

RAVENS CROFT, VERNON, *Penta Post and Treating Co., Tuttle.*

SHADDUCK, LOUISE, *Executive Secretary, Idaho Department of Commerce and Development, Boise.*

SIDDOWAY, BILL, *Siddoway Sheep Co., St. Anthony.*

TROMBLEY, GORDON, *State Land Commissioner, Boise.*

WHITE, LEE, *Joslyn Manufacturing and Supply Co., Sandpoint.*

WOODWORTH, JOHN R., *Director, Idaho Fish and Game Department, Boise.*

ACADEMIC STANDINGS AND ASSOCIATION AFFILIATIONS

ACCREDITATION

The University of Idaho is a member of the National Commission on Accrediting and is accredited by the Northwest Association of Secondary and Higher Schools. This accreditation embraces the entire University including all its colleges and the Graduate School. In addition to this general accreditation, the following organizations have given additional approval or accreditation:

- American Medical Association —the pre-medical curriculum.
- American Dietetics Association — the home economics food and nutrition curriculum.
- American Chemical Society — the chemistry curriculum.
- Engineers' Council for Professional Development—selected engineering curricula of the College of Engineering and the College of Mines.
- American Bar Association's Committee on Legal Education —the College of Law.
- Society of American Foresters — the College of Forestry, Wildlife and Range Sciences.
- National Council for Accreditation of Teacher Education.
- American Association of University Women.
- National Association of Schools of Music —the music and music education curricula.

The University of Idaho has long possessed nationally recognized marks of excellence:

1. A chapter of Sigma Xi, national honorary scientific society, since 1922.
2. A chapter of Phi Beta Kappa, national honorary scholarship society, since 1926.
3. A chapter of Phi Kappa Phi, national honorary scholastic society, since 1960.
4. Chapters of national honorary and scholarship societies in practically every field.

ASSOCIATION AFFILIATIONS

The University of Idaho holds memberships in the following organizations:

Adult Education Association of the United States
Air Pollution Control Association
Alpha Sigma Rho
American Alumni Council
American Association for Health, Physical Education, and Recreation
American Association of Colleges for Teacher Education
American Association of Collegiate Registrars and Admission Officers
American Association on Emeriti
American Association of Land-Grant Colleges and Universities
American Association of Law Libraries
American Association of Law Libraries Committee on

Exchange of Duplicates
American Association of Museums
American Bar Association's Committee on Legal Education
American Choral Foundation
American College Health Association
American College Public Relations Association
American College of Sports Medicine
American Concrete Institute
American Congress on Surveying and Mapping
American Council on Education
American Federation of Arts
American Fisheries Society
American Institute of Chemical Engineers
American Institute of Electrical Engineers
American Library Association
American Mathematical Society
American Road Builders Association
American Shorthorn Breeders Association
American Society for Engineering Education

American Society of Journalism School Administrators
 American Society for Testing Materials
 American Society of Agricultural Engineers
 American Society of Civil Engineers
 American Society of Mechanical Engineers
 American Studies Association
 American Symphony Orchestra League
 American Waterworks Association
 American Yorkshire Club, Inc.
 Associated Collegiate Press
 Associated Rocky Mountain Universities, Inc.
 Association for Professional Broadcasting Education
 Association of American Law Schools
 Association of College and University Housing Officers
 Association of College Unions
 Association of Collegiate Schools of Architecture
 Association of Governing Board of State Universities
 and Allied Institutions
 Association of N.R.O.T.C. Colleges
 Association of Official Seed Analysts
 Association of State College and University Forestry
 Research Organizations
 Association of State Geologists
 Athletic and Recreation Federation of College Women
 Audit Bureau of Publications
 Augustan Reprint Society
 Bibliographical Society of the University of Virginia
 Big Sky Athletic Concerence
 Book Club of California
 Champlain Society
 Canadian Library Association
 Canadian Political Science Association
 College Athletic Business Managers Association
 Council for Agricultural and Chemurgic Research
 Council of Arts and Science
 Council on Consumer Information
 Council of Graduate Schools in the United States
 Council On Social Work Education
 Forest Farmers Association Cooperative
 Forest History Society
 Hudson's Bay Record Society
 Idaho Academy of Science
 Idaho Broadcasters Association
 Idaho Federation of Music Clubs
 Idaho Holstein-Friesian Breeders
 Idaho Ice Cream Manufacturers Association
 Idaho Press Association
 Idaho Milk Processors Association
 Idaho Jersey Cattle Club
 Idaho State Golf Association
 Idaho State Library Association
 Indiana Historical Society
 Inland Empire Association Amateur Athletic Union
 Institute of International Education
 Intercollegiate Association of Women Students
 Intercollegiate Broadcasting System
 Intercollegiate Press
 International Congress of University Adult Education
 Mathematical Association of America
 Mountain-Plains Adult Education Association
 National Association of Accountants
 National Association of Basketball Coaches
 National Association for Business Teacher Education
 National Association of College Stores
 National Association of Educational Broadcasters
 National Association of Departments of English in
 Colleges and Universities
 National Association of College and University Attor-
 neys
 National Association of College and University Sum-
 mer Schools
 National Association of College and University Busi-
 ness Officers
 National Association of Foreign Student Advisors
 National Association of Secondary School Principals
 National Association of Schools of Music
 National Association of State Universities
 National Association of Student Personnel Adminis-
 trators
 National Collegiate Athletic Association
 National Collegiate Athletic Association Golf Coaches
 Association
 National Commission on Accrediting
 National Council on Crime and Delinquency
 National Education Association of the United States
 National Farm Chemurgic Council
 National Fire Protection Association
 National Intramural Association
 National Institutional Teacher Placement Association
 National Microfilm Association
 National Probation and Parole Association
 National Research Council
 National Rifle Association
 National Safety Council
 National Student Association
 National Track and Field Association
 National University Extension Association
 Northwest Institutional Teacher Placement Associa-
 tion
 Northwest Association of Colleges and Universities
 for Scientific Studies
 Northwest Association of Secondary and Higher
 Schools
 Northwest College Lectures and Concerts Association
 Northwest Scientific Association
 Northwest University Business Administration Con-
 ference
 Oxford Bibliographical Society
 Pacific Coast Association of Collegiate Registrars and
 Admission Officers
 Pacific Coast Association of Physical Plant Adminis-
 trators of Universities and Colleges
 Pacific Coast College Health Association
 Pacific Forensic League
 Pacific Northwest Association for College Physics
 Pacific Northwest Bibliographic Center
 Pacific Northwest Conference of Foreign Language
 Teachers
 Pacific Northwest Conference on Higher Education
 Pacific Northwest Library Association
 Pacific Northwest Newspaper Advertising Executives
 Association
 Pacific Northwest Pollution Control Association
 Pacific Northwestern Ski Association
 Potato Association of America
 Professional Photographers of America, Inc.
 Renaissance Society of America
 Rocky Mountain Mineral Law Institute
 Rocky Mountain Science Council
 Royal Historical Society
 Scottish Economic Society
 Selden Society
 Society of Architectural Historians
 South African Forestry Association
 The Spokane Westeners

Tax Institute, Incorporated
Technical Association of the Pulp and Paper Industry
The Library Association
United States Book Exchange
Universities Council on Water Resources
University Photographers Association
U.S. Field Hockey Association (W.R.A.)
Utah State Historical Society
Weed Society of America
Western Agricultural Economics Research Council
Western Association of Art Museums

Western Association of Colleges and University Business Officers
Western Association of Graduate Schools
Western College Book Store Association
Western College Placement Association
Western Economic Association
Western History Association
Western Museums League
Western Snow Conference
Wildlife Disease Association
Wisdom Society



UNIVERSITY OF IDAHO ENROLLMENT TABLE—CONSOLIDATED ENROLLMENT FOR 1966-67—June 4, 1967

COLLEGE, COURSE, OR CURRICULUM	FRESHMEN			SOPHOMORES			JUNIORS			SENIORS			SPECIALS			UNDERGRADUATE TOTALS			GRADUATE TOTALS			GRAND TOTALS		
	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T	M	M	T	M	W	T
COLLEGE OF LETTERS & SCIENCE	336	329	665	312	296	608	236	150	386	167	118	285	6	20	26	1057	913	1970	133	51	184	1190	964	2154
Arts	119	174	293	113	162	275	126	82	208	62	72	134				420	490	910						
Science	104	71	175	78	55	133	62	24	86	52	18	70				296	168	464						
Pre-Med	25	4	29	19	1	20	4	2	6	2		2				50	7	57						
Home Ec.	—	64	64	—	67	67	1	37	38	—	26	26				1	194	195						
Pre-Nurs.	1	7	8	—	6	6	—	1	1	—	—	—				1	14	15						
Pre-Dent.	7	1	8	15	—	15	8	—	8	4	—	4				34	1	35						
Music	—	2	2	5	1	6	1	2	3	—	2	—				6	7	13						
Architecture	42	5	47	46	1	47	20	2	22	41	—	41				149	8	157						
Physics	2	—	2	4	—	4	5	—	5	1	—	1				12	—	12						
Arts & Law Comb.	34	1	35	29	2	31	7	—	7	5	—	5				75	3	78						
Non-degree	2	—	2	3	1	4	2	—	2	—	—	—				7	1	8						
COLLEGE OF AGRICULTURE	85	6	91	98	4	102	77	2	79	71	1	72	—	—	—	331	13	344	75	5	80	406	18	424
COLLEGE OF ENGINEERING	224	2	226	206	1	207	167	1	168	199	2	201	2	—	2	798	6	804	57	—	57	855	6	861
Civil Engr.	45	—	45	40	—	40	51	—	51	53	1	54				189	1	190						
Electrical Engr.	60	—	60	74	—	74	52	—	52	67	—	67				253	—	253						
Mechanical Engr.	61	1	62	52	1	53	48	1	49	54	—	54				215	3	218						
Chemical Engr.	40	1	41	32	—	32	12	—	12	19	1	20				103	2	105						
Agric. Engr.	18	—	18	8	—	8	4	—	4	6	—	6				36	—	36						
COLLEGE OF LAW	—	—	—	41	1	42	29	1	30	32	3	35	1	—	1	103	5	108	—	—	—	103	5	108
LL.B.	—	—	—	4	—	4	3	—	3	6	1	7				13	1	14						
Juris Doctor	—	—	—	37	1	38	26	1	27	26	2	28				89	4	93						
COLLEGE OF MINES	20	1	21	21	—	21	18	—	18	27	1	28	—	—	—	86	2	88	29	3	32	115	5	120
Mining Engr.	7	—	7	2	—	2	—	—	—	3	—	3				12	—	12						
Met. Engr.	4	—	4	4	—	4	4	—	4	10	1	11				22	1	23						
Geol. Engr.	4	—	4	2	—	2	2	—	2	—	—	—				8	—	8						
Geology	3	1	4	12	—	12	4	—	4	8	—	8				27	1	28						
Geography	2	—	2	1	—	1	8	—	8	6	—	6				17	—	17						
COLLEGE OF FORESTRY	117	2	119	94	1	95	50	1	51	77	2	79	1	—	1	339	6	345	59	—	59	398	6	404
COLLEGE OF EDUCATION	95	214	309	107	250	357	129	187	316	138	144	282	2	13	15	471	808	1279	83	19	102	554	827	1381
Education	87	188	275	100	224	324	123	169	292	127	131	258				437	712	1149						
Music Ed.	7	5	12	6	9	15	4	5	9	6	3	9				23	22	45						
Bus. Ed.	1	21	22	1	17	18	2	13	15	5	10	15				9	61	70						
COLLEGE OF BUSINESS	168	48	216	201	39	240	193	19	212	118	9	127	2	4	6	682	119	801	26	—	26	708	119	827
Business	150	48	198	177	38	215	171	18	189	110	9	119				608	113	721						
Bus. & Law Comb.	18	—	18	24	1	25	22	1	23	8	—	8				72	2	74						
UNCLASSIFIED GRADUATES																			36	53	89	36	53	89
TOTAL IN RESIDENCE	1045	602	1647	1080	592	1672	899	361	1260	829	280	1109	14	37	51	3867	1872	5739	498	131	629	4365	2003	6368
SUMMER SESSION (1966)	Graduates:			491	202	693	Undergraduates:			377	372	749	Specials:			83	77	160				951	651	1602
NON-RESIDENT INSTRUCTION	College:			359	429	788	High School:			279	246	525										638	675	1313
ADULT EDUCATION																						176	166	342
EXTENSION COURSES																						427	806	1233
N.R.T.S.																						274	4	278
IN-ABSENTIA																						22	5	27
TOTAL STUDENTS SERVED DURING 1966-67																						6853	4310	11163

UNIVERSITY OF IDAHO ENROLLMENT TABLE—CONSOLIDATED ENROLLMENT—1967-1968—JUNE 2, 1968

COLLEGE, COURSE, OR CURRICULUM	FRESHMEN			SOPHOMORES			JUNIORS			SENIORS			SPECIALS & NON-MATRIC			UNDERGRADUATE TOTALS			GRADUATE TOTALS			GRAND TOTALS																								
	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T																						
COLLEGE OF LETTERS & SCIENCE	341	339	680	324	276	600	252	215	467	175	106	281	12	22	34	1104	958	2062	147	53	200	1251	1011	2262																						
Arts	134	188	322	137	154	291	102	111	213	83	55	138				456	508	964																												
Science	96	66	162	99	48	147	78	42	120	43	21	64				316	177	493																												
Pre-Med.	18	5	23	12	1	13	13	1	14	4	1	5				47	8	55																												
Home Ec.	—	59	59	—	57	57	1	59	60	—	24	24				1	199	200																												
Pre-Nurs.	—	12	12	1	9	10	—	1	1	—	—	—				1	22	23																												
Pre-Dent.	7	—	7	3	1	4	10	—	10	1	—	1				21	1	22																												
Music	2	1	3	—	1	1	3	1	4	1	2	3				6	5	11																												
Architecture	50	2	52	43	3	46	33	—	33	29	2	31				155	7	162																												
Physics	—	—	—	1	—	1	1	—	1	4	—	4				6	—	6																												
Comb. Arts & Law	33	3	36	24	1	25	10	—	10	9	1	10				76	5	81																												
Non-Degree	1	3	4	4	1	5	1	—	1	1	—	1				7	4	11																												
COLLEGE OF AGRICULTURE	112	9	121	100	6	106	85	4	89	69	2	71	2	1	3	368	22	390	74	7	81	442	29	471																						
COLLEGE OF ENGINEERING	201	2	203	191	1	192	182	2	184	182	1	183	3	—	3	759	6	765	66	1	67	825	7	832																						
Civil Engr.	35	—	35	28	1	29	42	1	43	58	—	58				163	2	165																												
Elect. Engr.	58	—	58	58	—	58	64	—	64	58	—	58				238	—	238																												
Mech. Engr.	63	—	63	59	—	59	48	1	49	50	1	51				220	2	222																												
Chem. Engr.	29	2	31	34	—	34	20	—	20	13	—	13				96	2	98																												
Agric. Engr.	16	—	16	12	—	12	8	—	8	3	—	3				39	—	39																												
COLLEGE OF LAW	—	—	—	48	2	50	26	—	26	39	1	40	1	—	1	114	3	117	—	—	—	114	3	117																						
LL.B.	—	—	—	5	—	5	1	—	1	10	—	10				16	—	16																												
Juris Doc.	—	—	—	43	2	45	25	—	25	29	1	30				97	3	100																												
COLLEGE OF MINES	14	3	17	18	—	18	16	—	16	20	1	21	—	—	—	68	4	72	43	1	44	111	5	116																						
Mining Engr.	2	—	2	5	—	5	3	—	3	3	—	3				13	—	13																												
Met. Engr.	4	—	4	3	—	3	2	—	2	3	1	4				12	1	13																												
Geol. Engr.	3	1	4	4	—	4	1	—	1	1	—	1				9	1	10																												
Geology	5	2	7	3	—	3	8	—	8	5	—	5				21	2	23																												
Geography	—	—	—	3	—	3	2	—	2	8	—	8				13	—	13																												
COLLEGE OF FORESTRY	101	1	102	95	—	95	76	—	76	70	3	73	1	—	1	343	4	347	61	—	61	404	4	408																						
COLLEGE OF EDUCATION	110	214	324	124	214	338	132	231	363	113	141	254	2	8	10	481	808	1289	125	49	174*	606	856	1462																						
Education	104	193	297	114	191	305	120	213	333	105	127	232				443	724	1167																												
Music Educ.	5	4	9	9	6	15	9	9	18	6	8	14				29	27	56																												
Bus. Educ.	1	17	18	1	17	18	3	9	12	2	6	8				7	49	56																												
COLLEGE OF BUSINESS	182	50	232	181	25	206	207	24	231	143	11	154	1	1	2	714	111	825	18	2	20	732	113	845																						
Business	163	49	212	169	24	193	184	22	206	130	11	141				646	106	752																												
Comb. Bus. & Law	19	1	20	12	1	13	23	2	25	13	—	13				67	4	71																												
UNCLASSIFIED GRADUATES																			43	64	107	43	64	107																						
TOTAL IN RESIDENCE	1061	618	1679	1081	524	1605	976	476	1452	811	266	1077	22	32	54	3951	1916	5867	577	177	754	4528	2093	6621																						
SUMMER SESSION 1967	Graduates:			482	179	661	Undergraduates:		414	336	750	Specials:			81	69	150				977	584	1561																							
NON-RESIDENT INSTRUCTION	College:			356	436	792	High School:		269	226	495											625	662	1287																						
ADULT EDUCATION																																														
EXTENSION COURSES																																														
N.R.T.S.																																														
IN-ABSENTIA																																														
TOTAL STUDENTS SERVED DURING 1967-68																																														
*Includes 27 Ed. Specialists																																														

	IN RESIDENCE			S.S. (1967)			CORRESPON. Courses			EXTENSION Courses			ADULT ED.			IN-ABSENTIA		
	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T
Lewis	60	32	92	12	12	24	4	8	12	4	19	23	—	—	—	—	1	1
Lincoln	22	7	29	2	—	2	—	2	2	3	3	6	—	—	—	—	—	—
Madison	13	6	19	1	—	1	2	1	3	2	3	5	—	—	—	—	—	—
Minidoka	64	27	91	8	3	11	4	13	17	1	8	9	—	—	—	—	—	—
Nez Perce	206	122	328	49	45	94	25	28	53	90	190	280	—	1	1	—	—	—
Oneida	9	3	12	1	—	1	—	—	—	—	2	2	—	—	—	—	—	—
Owyhee	29	8	37	7	1	8	3	10	13	7	11	18	—	—	—	—	—	—
Payette	66	30	96	9	3	12	7	7	14	16	11	27	—	—	—	—	—	—
Power	17	11	28	—	—	—	2	6	8	1	3	4	—	—	—	—	—	—
Shoshone	162	69	231	20	24	44	17	21	38	18	42	60	2	20	22	—	—	—
Teton	2	—	2	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—
Twin Falls	203	113	316	32	12	44	10	17	27	3	18	21	—	—	—	—	—	—
Valley	27	21	48	5	4	9	4	11	15	1	2	3	—	—	—	—	—	—
Washington	49	31	80	7	—	7	3	3	6	20	20	40	—	—	—	—	—	—
IDAHO TOTALS	3371	1800	5171	513	383	896	418	516	934	403	886	1289	21	81	102	3	5	8

OTHER STATES

Alabama	1	—	1	—	—	—	3	1	4	—	—	—	—	—	—	—	—	—
Alaska	25	9	34	4	4	8	3	2	5	—	—	—	—	—	—	—	1	1
Arizona	7	4	11	4	1	5	2	1	3	—	—	—	—	—	—	—	—	—
Arkansas	2	—	2	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—
California	165	49	214	59	12	71	52	14	66	—	—	—	—	—	—	—	—	—
Colorado	14	4	18	6	2	8	1	1	2	—	—	—	—	—	—	—	—	—
Connecticut	9	1	10	2	—	2	1	—	1	—	—	—	—	—	—	—	—	—
Delaware	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
District of Columbia	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Florida	5	2	7	—	—	—	5	1	6	—	—	—	—	—	—	—	—	—
Georgia	—	—	—	—	1	1	2	—	2	—	—	—	—	—	—	—	—	—
Hawaii	16	3	19	1	—	1	—	2	2	—	—	—	—	—	—	—	—	—
Illinois	33	7	40	10	5	15	6	3	9	—	—	—	—	1	1	—	—	—
Indiana	8	1	9	4	—	4	1	—	1	—	—	—	—	—	—	—	—	—
Iowa	15	3	18	10	2	12	—	—	—	—	—	—	—	—	—	—	—	—
Kansas	11	3	14	7	1	8	1	2	3	—	—	—	—	—	—	—	—	—
Kentucky	2	—	2	—	—	—	1	1	2	—	—	—	—	—	—	—	—	—
Louisiana	4	—	4	3	1	4	1	—	1	—	—	—	—	—	—	—	—	—
Maine	3	—	3	—	—	—	3	3	6	—	—	—	—	—	—	—	—	—
Maryland	12	5	17	1	1	2	4	2	6	—	—	—	—	—	—	—	—	—
Massachusetts	10	1	11	2	—	2	1	1	2	—	—	—	—	—	—	—	—	—
Michigan	10	4	14	4	—	4	1	2	3	—	—	—	—	—	—	—	—	—
Minnesota	21	6	27	14	2	16	—	1	1	—	—	—	—	—	—	—	—	—
Mississippi	1	1	2	—	1	1	1	—	1	—	—	—	—	—	—	—	—	—
Missouri	7	—	7	3	—	3	—	2	2	—	—	—	—	—	—	—	—	—
Montana	28	12	40	9	6	15	20	21	41	—	3	3	—	—	—	—	—	—
Nebraska	1	—	1	1	—	1	4	2	6	—	—	—	—	—	—	—	—	—
Nevada	14	2	16	4	1	5	3	3	6	—	—	—	—	—	—	—	—	—
New Hampshire	2	—	2	1	—	1	—	1	1	—	—	—	—	—	—	—	—	—

	IN RESIDENCE			S.S. (1967)			CORRESPON. Courses			EXTENSION Courses			ADULT ED.			IN-ABSENTIA		
	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T
Israel	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Japan	3	1	4	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—
Kenya	2	—	2	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—
Korea	3	—	3	3	—	3	—	—	—	—	—	—	—	—	—	—	—	—
Libya	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mexico	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Netherlands	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nigeria	4	—	4	4	—	4	—	—	—	—	—	—	—	—	—	—	—	—
Norway	4	—	4	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—
Puerto Rico	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pakistan	16	1	17	4	—	4	—	—	—	—	—	—	—	—	—	—	—	—
Saudi Arabia	4	—	4	3	—	3	—	—	—	—	—	—	—	—	—	—	—	—
Spain	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Syria	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Thailand	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Turkey	1	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
FOREIGN COUNTRY TOTALS	147	23	170	44	4	48	9	3	12	—	—	—	—	—	—	—	—	—

CONSOLIDATED GEOGRAPHIC DISTRIBUTION OF STUDENTS—1966-67
June 4, 1967
SUMMARY

	IN RESIDENCE			S.S. (1966)			CORRESPON. Courses			EXTENSION Courses			ADULT ED.			IN-ABSENTIA			N.R.T.S.		
	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T
IDAHO COUNTIES	3238	1702	4940	518	432	950	464	532	996	376	744	1120	172	162	334	12	2	14	274	4	278
OTHER STATES	974	275	1249	319	137	456	159	138	297	51	62	113	4	4	8	9	3	12	—	—	—
FOREIGN	144	21	165	31	5	36	15	5	20	—	—	—	—	—	1	—	1	—	—	—	—
TOTALS	4356	1998	6354	868	574	1442	638	675	1313	427	806	1233	176	166	342	22	5	27	274	4	278
IDAHO BY COUNTIES																					
Ada	446	184	630	61	27	88	58	78	136	14	26	40	55	67	122	2	—	2	—	—	—
Adams	11	10	21	2	—	2	5	8	13	3	10	13	1	—	1	—	—	—	—	—	—
Bannock	45	18	63	11	4	15	14	23	37	—	—	—	1	1	2	—	—	—	6	—	6

	IN RESIDENCE			S.S. (1966)			CORRESPON. Courses		EXTENSION Courses			ADULT ED.			IN-ABSENTIA			N.R.T.S.			
Bear Lake	11	5	16	2	—	2	2	—	2	—	—	—	—	—	—	—	—	—	—	—	
Benevah	44	24	68	9	2	11	5	11	16	3	19	22	—	—	—	—	—	—	—	—	
Bingham	62	28	90	9	—	9	6	14	20	1	20	21	9	2	11	1	—	1	18	2	20
Blaine	22	9	31	5	—	5	5	4	9	1	—	1	—	—	—	—	—	—	—	—	
Boise	8	2	10	1	1	2	2	2	4	—	1	1	—	—	—	—	—	—	—	—	
Bonner	126	90	216	13	12	25	9	17	26	7	21	28	4	8	12	—	—	—	—	—	
Bonneville	144	52	196	10	5	15	12	6	18	—	—	—	53	8	61	—	—	—	244	1	245
Boundary	59	19	78	11	8	19	4	7	11	—	1	1	—	1	1	1	—	1	—	—	
Butte	5	7	12	3	—	3	1	4	5	2	11	13	3	1	4	—	—	—	4	—	4
Camas	8	4	12	2	3	5	1	1	2	1	1	2	—	—	—	—	—	—	—	—	
Canyon	199	99	298	26	19	45	39	51	90	46	104	150	8	9	17	—	—	—	—	—	
Caribou	9	3	12	—	1	1	2	2	4	—	—	—	1	—	1	—	—	—	—	—	
Cassia	45	20	65	6	3	9	10	9	19	9	34	43	—	—	—	—	—	—	—	—	
Clark	—	1	1	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	
Clearwater	71	29	100	11	14	25	6	17	23	5	26	31	2	—	2	1	—	1	—	—	
Custer	17	7	24	3	2	5	3	7	10	—	—	—	—	—	—	—	—	—	—	—	
Elmore	64	34	98	4	9	13	6	13	19	14	11	25	1	1	2	1	—	1	—	—	
Franklin	3	4	7	—	1	1	2	1	3	—	—	—	1	—	1	—	—	—	—	—	
Fremont	16	9	25	5	2	7	2	3	5	—	—	—	—	—	—	—	—	—	—	—	
Gem	44	16	60	6	1	7	7	10	17	11	18	29	4	1	5	—	—	—	—	—	
Gooding	60	39	99	7	5	12	5	13	18	7	10	17	—	—	—	—	—	—	—	—	
Idaho	88	22	110	14	21	35	11	16	27	16	16	32	—	—	—	—	1	1	—	—	
Jefferson	21	6	27	4	—	4	2	2	4	—	1	1	2	—	2	—	—	—	—	1	1
Jerome	47	20	67	4	4	8	10	8	18	1	—	1	—	1	—	—	—	—	—	—	
Kootenai	180	87	267	34	20	54	68	28	96	14	49	63	22	43	65	—	—	—	—	—	
Latah	454	396	850	98	138	236	57	56	113	23	43	66	1	—	1	4	—	4	—	—	
Lemhi	18	5	23	—	—	—	2	4	6	—	—	—	—	—	—	—	—	—	—	—	
Lewis	51	21	72	9	13	22	1	6	7	12	24	36	—	—	—	—	1	1	—	—	
Lincoln	18	9	27	3	2	5	2	3	5	—	—	—	—	—	—	—	—	—	—	—	
Madison	14	10	24	3	1	4	2	—	2	—	—	—	—	—	—	—	—	—	2	—	2
Minidoka	67	20	87	10	3	13	5	15	20	2	10	12	—	—	—	—	—	—	—	—	
Nez Perce	190	121	311	50	62	112	34	28	62	110	162	272	—	—	—	1	—	1	—	—	
Oneida	9	3	12	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Owyhee	38	10	48	8	2	10	3	4	7	3	13	16	—	—	—	—	—	—	—	—	
Payette	56	32	88	8	5	13	8	5	13	26	25	51	—	—	—	1	—	1	—	—	
Power	20	10	30	2	2	4	3	4	7	—	—	—	—	—	—	—	—	—	—	—	
Shoshone	156	71	227	20	21	41	21	23	44	25	53	78	2	13	15	—	—	—	—	—	
Teton	2	—	2	1	—	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—	
Twin Falls	217	103	320	26	13	39	24	20	44	15	12	27	—	—	—	—	—	—	—	—	
Valley	30	19	49	4	3	7	3	3	6	—	—	—	—	—	—	—	—	—	—	—	
Washington	43	24	67	12	3	15	2	4	6	5	23	28	—	—	—	—	—	—	—	—	
IDAHO TOTALS	3238	1702	4940	518	432	950	464	532	996	376	744	1120	172	162	334	12	2	14	274	4	278

	IN RESIDENCE		S.S. (1966)		CORRESPON. Courses		EXTENSION Courses			ADULT ED.		IN-ABSENTIA			N.R.T.S.		
OTHER STATES																	
Alabama	1	—	1	—	—	—	1	1	2	—	—	—	—	—	—	—	—
Alaska	25	9	34	2	4	6	1	1	2	—	—	—	—	—	—	—	—
Arizona	7	—	7	4	2	6	—	—	—	—	—	—	—	—	—	—	—
Arkansas	2	—	2	—	1	1	—	—	—	—	—	—	—	—	—	—	—
California	163	36	199	54	13	67	49	8	57	—	—	—	—	—	—	—	—
Colorado	15	4	19	5	6	11	1	1	2	—	—	—	—	—	—	—	—
Connecticut	6	2	8	1	—	1	1	—	1	—	—	—	—	—	—	—	—
Delaware	1	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dist. Col.	1	1	2	1	—	1	—	—	—	—	—	—	—	—	—	—	—
Florida	5	1	6	2	—	2	1	1	2	—	—	—	—	—	—	—	—
Georgia	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—
Hawaii	21	3	24	2	—	2	1	4	5	—	—	—	—	—	—	—	—
Illinois	33	9	42	4	2	6	4	4	8	—	—	—	—	—	—	—	—
Indiana	11	3	14	1	—	1	—	1	1	—	—	—	—	—	—	—	—
Iowa	8	3	11	8	3	11	—	2	2	—	—	—	—	—	—	—	—
Kansas	10	2	12	6	—	6	2	2	4	—	—	—	—	—	—	—	—
Kentucky	2	—	2	—	—	—	1	—	1	—	—	—	—	—	—	—	—
Louisiana	5	2	7	—	1	1	—	1	1	—	—	—	—	—	—	—	—
Maine	1	—	1	—	—	—	1	4	5	—	—	—	—	—	—	—	—
Maryland	11	3	14	—	1	1	1	1	2	—	—	—	—	—	—	—	—
Massachusetts	12	—	12	2	2	4	—	—	—	—	—	—	—	—	—	—	—
Michigan	9	3	12	3	—	3	—	—	—	—	—	—	—	—	—	—	—
Minnesota	17	2	19	6	2	8	—	—	—	—	—	—	—	—	—	—	—
Mississippi	—	1	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—
Missouri	6	1	7	2	—	2	—	2	2	—	—	—	—	—	—	—	—
Montana	28	9	37	9	1	10	13	24	37	—	1	1	—	—	—	—	—
Nebraska	3	—	3	4	—	4	1	3	4	—	—	—	—	—	—	—	—
Nevada	14	3	17	6	2	8	3	10	13	—	—	2	—	2	—	—	—
New Hampshire	3	1	4	1	—	1	—	—	—	—	—	—	—	—	—	—	—
New Jersey	12	2	14	4	3	7	3	—	4	7	—	—	—	—	—	—	—
New Mexico	8	—	8	4	1	5	3	—	3	—	—	—	—	—	—	—	—
New York	27	4	31	9	3	12	9	2	11	—	—	—	—	—	—	—	—
N. Carolina	4	—	4	—	—	4	4	2	6	—	—	—	—	—	—	—	—
N. Dakota	4	2	6	3	—	3	5	—	5	—	—	—	—	—	—	—	—
Ohio	20	5	25	5	1	6	2	5	7	—	—	—	—	—	—	—	—
Oklahoma	6	—	6	3	—	3	1	—	1	—	—	—	—	—	—	—	—
Oregon	64	29	93	37	16	53	11	15	26	9	16	25	1	3	4	1	1
Pennsylvania	27	2	29	5	1	6	1	1	2	—	—	—	—	—	—	—	—
Rhode Island	1	—	1	—	—	—	2	—	2	—	—	—	—	—	—	—	—
S. Carolina	3	—	3	1	—	1	1	2	3	—	—	—	—	—	—	—	—
S. Dakota	3	—	3	1	1	2	—	—	—	—	—	—	—	—	—	—	—
Tennessee	3	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Texas	14	2	16	2	2	4	1	1	2	—	—	—	—	—	—	—	—
Utah	10	2	12	11	—	11	4	1	5	—	—	—	—	—	—	—	—
Vermont	2	—	2	1	1	2	—	—	—	—	—	—	—	—	—	—	—
Virginia	16	1	17	2	1	3	2	1	3	—	—	—	—	—	—	—	—

	IN RESIDENCE			S.S. (1966)			CORRESPON. Courses			EXTENSION Courses			ADULT ED.			IN-ABSENTIA			N.R.T.S.		
Washington	304	120	424	96	62	158	25	30	55	42	45	87	1	1	2	1	2	3	—	—	—
West Virginia	2	2	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Wisconsin	21	3	24	5	2	7	1	2	3	—	—	—	—	—	—	—	—	—	—	—	—
Wyoming	7	2	9	6	1	7	2	2	4	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL STATES	974	275	1249	319	137	456	159	138	297	51	62	113	4	4	8	9	3	12	—	—	—
FOREIGN COUNTRIES																					
Africa	—	—	—	—	—	—	5	—	5	—	—	—	—	—	—	—	—	—	—	—	—
Argentina	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Australia	1	—	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bolivia	1	—	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Brazil	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
British Isles	1	2	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
British Commonwealth	5	3	8	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Canada	25	5	30	8	—	8	8	1	9	—	—	—	—	—	—	1	—	1	—	—	—
Canal Zone	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chile	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
China	20	4	24	2	1	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cuba	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Egypt	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—
El Salvador	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Germany	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—
India	20	1	21	4	2	6	1	1	2	—	—	—	—	—	—	—	—	—	—	—	—
Iran	17	—	17	2	—	2	—	1	2	—	—	—	—	—	—	—	—	—	—	—	—
Ireland	1	—	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Israel	1	—	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Japan	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Kenya	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Korea	8	—	8	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mexico	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Netherlands	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nigeria	4	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Norway	6	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Okinawa	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pakistan	11	1	12	5	1	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Philippines	1	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Saudi Arabia	2	1	3	2	—	2	1	1	2	—	—	—	—	—	—	—	—	—	—	—	—
Spain	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Syria	3	—	3	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Thailand	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Turkey	1	1	2	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
FOREIGN COUNTRIES TOTALS	144	21	165	31	5	36	15	5	20	—	—	—	—	—	—	1	—	1	—	—	—

- Abbreviations and symbols
key to / **137**
- Absence
general regulations covering / **47**
from final examinations / **42**
see also Leave of absence
- Absentia courses
procedures for registration in / **118**
credit limitations in / **118**
fees for / **26**
- Academic calendars / **4-7**
- Academic standings and association affiliations / **335**
- Academic unit(s)
high school
defined / **20**
required for admission / **20**
- Academic year
defined / **49**
- Accelerated courses
registration in / **38**
- Accelerated program in music / **99**
- Accident insurance
general provision for / **14, 26**
for foreign students / **24**
- Accounting
degrees offered in / **35**
courses in / **140**
undergraduate curriculum in / **57**
- Accounts
auditing of / **49**
- Accreditation / **335**
- Activities
extracurricular
eligibility for participation in / **46**
- Adding courses / **38-39**
- Administration
officers of / **2**
- Admission
general regulations and procedures covering / **17**
early / **19**
of non-high school graduates / **21**
to classes / **37**
to teacher education / **60**
of lower-division students to upper-division courses / **37**
of undergraduates to graduate courses / **38**
after disqualification / **46**
to College of Education / **59**
to College of Engineering / **67**
to College of Forestry / **73**
to College of Law / **81**
to College of Letters and Science / **89**
to Graduate School / **114**
to adult education centers / **130**
to extension courses / **129**
to workshops / **22**
- Adult education centers
admission to / **130**
credit limitations in / **130**
- Advanced standing
admission with / **21**
admission to College of Law with / **82**
in course sequences / **42**
fees covering / **27**
- Advertising
undergraduate curriculum in / **98**
- Aerospace studies
see Air Force ROTC and Reserve Officers' Training Corps
- Affiliate Faculty / **330**
- Agribusiness
undergraduate curriculum in / **53**
- Agricultural biochemistry
degrees offered in / **35-36**
courses in / **141**
undergraduate curriculum in / **53**
- Agricultural Consulting Council
members of / **333**
- Agricultural economics
degrees offered in / **35-36**
courses in / **142**
undergraduate curricula in / **54**
- Agricultural education
degrees offered in / **35-36**
courses in / **144**
undergraduate curriculum in / **53-54**
- Agricultural engineering
degrees offered in / **35-36**
courses in / **145**
undergraduate curriculum in / **70**
- Agricultural Experiment Station / **303**
- Agricultural Extension Service
description of / **305**
faculty members of / **326**

- Agricultural mechanization
 - degrees offered in / **35**
 - undergraduate curriculum in / **53**
- Agricultural science
 - undergraduate curriculum in / **53**
- Agriculture
 - College of
 - admission to / **20**
 - degrees and curricula offered in / **35-36, 51**
 - general courses in / **141**
- Air Force ROTC
 - courses in / **148**
 - program in / **134**
- Alcoholic beverages
 - general regulation covering / **49**
- Algebra
 - high school units required in / **20**
- Alumni Association / **16-17**
- Animal industries
 - degrees offered in / **35**
 - courses in / **149**
 - undergraduate curriculum in / **53**
- Animal science
 - degrees offered in / **35-36**
 - courses in / **149**
 - undergraduate curricula / **53**
- Anthropology
 - degrees offered in / **35-36**
 - courses in / **152**
 - undergraduate curriculum in / **92**
 - department of / **89**
- Application for degrees
 - general regulations covering / **44**
 - in Graduate School / **119**
- Application for financial aids / **10**
- Applied music (performance studies)
 - courses in / **260**
 - fees covering / **260**
 - refund of fees for / **27**
- Appointment
 - of major professors / **120**
- Architecture
 - degrees offered in / **35-36**
 - courses in / **154**
 - undergraduate curriculum in / **92**
 - department of / **86**
- Argonaut, The Idaho* / **15**
- Army ROTC
 - courses in / **133**
 - program in / **157**
- Art
 - degrees offered in / **35-36**
 - courses in / **157**
 - undergraduate curricula in / **93**
- teaching majors and minors in / **63**
- department of / **86**
- Arts and law
 - combined curriculum in / **98**
- Assistantships
 - graduate / **113**
 - educational privilege of / **26**
 - in College of Forestry / **79**
 - in College of Mines / **110**
- Associated Students of the University of Idaho / **15**
 - membership fee / **25**
- Association affiliations / **335**
- Athletics
 - eligibility for participation in / **46**
- Attendance regulations / **47**
- Auditing of accounts / **49**
- Auditors
 - regulations covering / **37**
 - fees for / **26**
- Awards / **14**
- Bacteriology
 - degrees offered in / **35-36**
 - courses in / **159**
 - undergraduate curricula in / **53, 93**
- Band
 - credit limitation in organized music courses / **44**
- Bar
 - admission to / **80**
- Beverages
 - regulations covering alcoholic / **49**
- Big Sky Conference / **16**
- Biochemistry
 - see* Agricultural biochemistry
- Biological sciences
 - teaching majors and minors in / **63**
 - department of / **86**
 - see also* Biology, Botany, Zoology
- Biology
 - degrees offered in / **35**
 - courses in / **161**
 - undergraduate curriculum in / **94**
 - teaching majors and minors in / **63**
 - high school units required in / **20**
 - advanced placement in / **42**
- Board
 - rates and regulations / **30**
- Board of Regents / **2**
- Books and supplies
 - estimated cost of / **25**
- Botany
 - degrees offered in / **35-36**
 - courses in / **162**
 - undergraduate curriculum in / **94**
 - teaching majors and minors in / **63**

- Bureaus
 - Business and Economic Research / **309**
 - Educational Research and Service / **309**
 - Mines and Geology / **109, 310**
 - Public Affairs Research / **310**
- Business
 - degrees offered in / **35-36**
 - courses in / **165**
 - general undergraduate curriculum in / **58**
 - see also* Agribusiness
- Business and applied science
 - undergraduate curriculum in / **57**
- Business and Economic Research
 - Bureau of / **309**
- Business and Economics
 - College of
 - admission to / **20**
 - degrees and curricula / **55**
- Business education
 - degrees offered in / **35-36**
 - courses in / **169**
 - curriculum in / **64**
- Business and law
 - combined curriculum in / **57**
- Business management (forestry)
 - undergraduate curriculum in / **76**
- Calendars, academic / **4-7**
- Campus
 - definition of / **49**
- Candidacy
 - admission to
 - for master's degree / **121**
 - for doctor's degree / **125**
- Career planning / **13**
- Catalog
 - time limit for graduation under / **45**
 - required after curriculum change / **44-45**
- Certificate(s)
 - in education / **60, 126**
 - of general proficiency / **129**
 - real estate / **128**
- Certification for teaching
 - recommendation for / **60**
 - through College of Education / **60**
 - through College of Letters and Science / **90**
- Challenge (credit by examination)
 - procedures for / **39-40**
 - fees covering / **27**
- Change(s)
 - University's right to make / **9**
 - in registration / **38**
 - in curriculum / **39**
 - in graduate study program / **117**
- of grades / **40**
- Chemical engineering
 - degrees offered in / **35-36**
 - courses / **170**
 - undergraduate curriculum / **70**
- Chemistry
 - degrees offered in / **35-36**
 - courses in / **172**
 - undergraduate curricula in / **95**
 - high school units required in / **20**
 - advanced placement in / **42**
 - department of / **87**
 - accreditation of / **335**
- Child development
 - degrees offered in / **35**
 - undergraduate curriculum in / **97**
- Chorus
 - credit limitation in organized music courses / **44**
- Civil defense program / **128**
- Civil engineering
 - degrees offered in / **35-36**
 - courses in / **178**
 - undergraduate curriculum in / **70**
- Class rating for undergraduates
 - credits required for / **48**
- Classes
 - admission to / **37**
 - absence from / **44**
 - withdrawal from / **39**
- Classical studies
 - degrees offered in / **35**
 - courses in / **209**
 - undergraduate curriculum in / **95**
- Classrooms
 - use of / **48**
 - smoking in / **49**
- Clerical errors in reporting grades / **40**
- Clothing, textiles and design
 - degrees offered in / **35**
 - undergraduate curriculum in / **97**
- Coaching
 - teaching majors and minors in / **63**
- Coeur d'Alene summer program / **130**
- Commencement
 - excuses from / **119**
- Committees
 - appointment of graduate supervisory / **120**
- Communications
 - courses in / **182**
 - department of / **87**
 - see also* Journalism, Photography, Radio-television
- Composition (musical)
 - undergraduate curriculum in / **100**

- Conduct
 - regulations governing student / **49**
- Conferences
 - instructional / **130-131**
- Continuing Education
 - Division of / **128-130**
- Cooperating faculty members / **328**
- Cooperative graduate program with Washington State University / **114**
- Cooperative residence halls / **29**
- Correspondence study
 - admission to / **130**
 - restrictions on / **37**
 - credit limitations in / **44**
 - grade points in / **46**
 - bulletin of / **130**
- Costs
 - see* Expenses
- Counseling services / **13**
- Course numbering system / **137**
- Courses
 - designation as to term of offering of / **138**
 - repeat and review of / **41**
- Credentials
 - for admission / **18**
 - required of foreign students / **123**
- Credit(s)
 - definition of / **39**
 - transfer of / **22, 39**
 - for less than one year's work / **39**
 - in by-passed courses / **42**
 - in courses taken in review / **41**
 - in foreign language courses / **209**
 - in repeated high school courses / **40**
 - in challenged courses / **39**
 - required in upper-division courses / **44**
 - in subtitled courses / **138**
 - recency of (for master's degree) / **120**
 - see also* Credit limitations and Credit requirements
- Credit limitations
 - general provisions covering / **39, 44**
 - for special students / **22**
 - for summer non-matriculated students / **23**
 - in certain classifications of courses / **44**
 - for part-time students / **26**
 - for graduate students / **117**
 - for graduate appointees / **117**
 - for staff members / **26**
 - in courses taken *in absentia* / **118**
 - for full-time employees / **118**
 - in master's research and thesis / **121**
 - see also* Credits and Credit requirements
- Credit requirements
 - for status as full-time student / **49**
 - for master's degree / **120**
 - for doctor's degrees / **123**
 - for standing in the various classes / **48**
 - for partial enrollment in the Graduate School / **116**
 - for participation in extracurricular activities / **46**
 - see also* Credits and Credit limitations
- Cum laude*
 - requirements for the awarding of / **45**
- Curriculum
 - changes in / **39**
- Curriculum requirements
 - fulfillment of / **44**
 - University changes in / **45**
- Dairy science
 - undergraduate curricula / **53**
 - courses in / **149**
 - see also* Animal industries
- Damage
 - to property in residence halls / **31**
- Debate
 - eligibility to participate in / **47**
- Deficiencies
 - admission with / **21**
 - in group requirements / **21**
 - in grade points / **46**
 - for graduate study / **119**
- Degree applications / **44**
- Degree requirements
 - catalog applicable for / **44-45**
 - for baccalaureate degrees / **43**
 - for master's degrees / **120**
 - for doctor's degrees / **122**
- Degrees granted / **33-34**
- Dental studies
 - undergraduate pre-dental curriculum / **102**
 - preparatory program in / **88**
- Deposit
 - for family housing / **33**
- Design
 - undergraduate curricular options in art / **93**
 - undergraduate curriculum in clothing, textiles and design / **97**
- Diploma fees / **27**
- Disenrollment
 - of students by the University / **9**
 - of graduate students / **119**
 - see also* Withdrawal
- Dismissal
 - from residence halls / **31**
 - see also* Disenrollment and Withdrawal
- Disqualification
 - scholastic
 - removal of / **46**

- Dissertation
 - for doctor's degree / **125**
- Distribution of students
 - geographic / **340**
- Distributive education
 - undergraduate curricular option in / **64**
- Doctor's degrees
 - granted by the University / **36**
 - general requirements for / **123**
 - procedures / **124**
- Dormitories
 - see Housing
- Drama
 - degrees offered in / **35-36**
 - courses in / **182**
 - undergraduate curriculum in / **95**
 - teaching majors and minors in / **63**
 - department of / **87**
- Dramatic activities
 - eligibility for participation in / **47**
- Dropping courses / **38-39**
- Earth science
 - degree offered in / **36**
 - teaching majors and minors / **63**
- Economics
 - degrees offered in / **35-36**
 - courses in / **184**
 - undergraduate curricula in / **58, 95**
 - see also Agricultural economics
- Education
 - accreditation / **335**
 - degrees offered in / **35-36**
 - courses in / **186**
 - undergraduate curricula in
 - agricultural education / **53-54**
 - art education / **93**
 - business education / **57**
 - elementary education / **62**
 - home economics education / **96**
- Education
 - accreditation / **335**
 - degrees offered in / **35-36**
 - courses in / **186**
 - undergraduate curricula in
 - agricultural education / **53-54**
 - art education / **93**
 - business education / **57**
 - elementary education / **62**
 - home economics education / **96**
 - home economics education / **96**
 - industrial arts education / **64**
 - music education / **100**
 - physical education / **64**
 - secondary education / **63**
 - special education / **65**
 - technical education / **65**
 - vocational teacher education / **65**
- Education
 - College of
 - admission to / **20, 59**
 - degrees and curricula in / **59**
- Education
 - State Board of / **2**
- Educational Research and Service
 - Bureau of / **309**
- Elective unit
 - high school
 - defined / **20**
- Electrical engineering
 - degrees offered in / **35-36**
 - courses in / **194**
 - undergraduate curriculum in / **71**
- Elementary education
 - degrees offered in / **35-36**
 - undergraduate curriculum in / **62**
- Eligibility
 - to reregister / **46**
 - for participation in extracurricular activities / **46**
- Employment / **10, 15**
- Engineering
 - degrees offered in / **35-36**
 - general courses in / **199**
 - professional degrees offered in / **126**
- Engineering
 - College of
 - admission to / **20**
 - degrees and undergraduate curricula in / **66**
- Engineering Advisory Board
 - members / **334**
- Engineering Experiment Station / **307**
- Engineering science
 - courses in / **200**
- English
 - degrees offered in / **35-36**
 - all-university requirement in / **43**
 - units required for admission / **20**
 - advanced placement in / **42**
 - courses in / **201**
 - undergraduate curriculum in / **95**
 - teaching majors and minors in / **63**
 - as a foreign language / **23**
 - proficiency for foreign students / **23**
 - department of / **87**
- Enrollment
 - statistics / **338**
 - categories in Graduate School / **115**
- Entomology
 - degrees offered in / **35-36**
 - courses in / **205**
 - undergraduate curriculum in / **53**
- Entrance examinations / **19**
- Equipment

- fees for / **27**
- for students living in residence halls / **31**
- Errors
 - in reporting grades / **40**
- Examination(s)
 - for entering freshmen / **19**
 - physical for admission / **18**
 - admission by / **21**
 - absence from final / **42**
 - for "credit by examination" / **39**
 - special final / **42**
 - finals in Graduate School / **119**
 - for master's degree / **121**
 - for doctor's degree / **124-125**
 - repeating of graduate / **119**
- Excuses
 - for absences / **47**
- Expenses / **24**
- Experiment stations
 - agricultural / **303**
 - engineering / **307**
 - forestry, wildlife and range / **307**
- Expulsion
 - see* Withdrawal
- Extension courses
 - purpose of / **129**
 - admission to / **129**
 - regulations governing / **129**
 - credit limitations in / **44**
 - grade points in / **46**
 - removal of incompletes in / **41**
 - restrictions on / **37**
- Extension faculty members / **326**
- Extracurricular activities
 - general information on / **15**
 - eligibility for participation in / **46**
- Faculty
 - members / **313**
 - awarding of doctoral degrees to / **123**
 - educational privilege of / **26**
- Family housing / **32**
- Fees
 - admission application / **18**
 - regular / **25**
 - for faculty and staff members / **26**
 - applied music / **260**
 - refund of / **27**
 - University's right to change / **25**
- Fellowships
 - general information on / **113**
 - in forestry / **79**
 - in mines / **110**
- Field camp
 - forestry / **75**
 - mines / **110**
- Field trips
 - regulations and procedures covering / **48**
 - costs / **27**
- Fifth-year program in teacher education
 - general requirements covering / **125**
- Final examinations
 - see* Examinations
- Finance
 - degrees offered in / **35-36**
 - undergraduate curriculum in / **58**
- Financial aid
 - available to all students / **10**
 - for graduate students / **113**
 - in College of Mines / **110**
- Financial statement
 - for foreign students / **23**
- Fire insurance
 - in residence halls / **31**
 - see also* Smoking
- Fishery management
 - degrees offered in / **35-36**
 - undergraduate curriculum in / **77**
- Food and nutrition
 - degrees offered in / **35**
 - undergraduate curriculum in / **97**
 - accreditation of / **335**
- Food science
 - degrees offered in / **35-36**
 - courses in / **207**
 - undergraduate curricula in / **53**
- Foreign languages
 - degrees offered in / **35-36**
 - courses in / **209**
 - teaching majors and minors in / **63**
 - for master's degree / **120**
 - for doctor's degree / **123**
 - department of / **87**
 - see also* French, German, Greek, Italian, Latin, Russian, and Spanish
- Foreign students
 - admission of / **23**
- Forest entomology
 - degrees offered in / **36**
- Forest management
 - degrees offered in / **35-36**
 - undergraduate curriculum in / **75**
- Forest pathology
 - degrees offered in / **36**
- Forest products
 - wood utilization technology
 - degrees offered in / **35**
 - undergraduate curriculum in / **76**
- Forest sciences
 - degrees offered in / **36**
- Forest, Wildlife and Range Experiment Station / **307**

- Forestry
 - courses in / **213**
- Forestry, Wildlife and Range Sciences
 - College of
 - admission to / **20**
 - degrees and curricula / **72**
 - accreditation of / **335**
 - Forestry Planning and Development Council
 - members **334**
 - Fraternalities
 - chapters on campus, costs and membership arrangements for / **32**
 - French
 - degrees offered in / **35**
 - courses in / **209**
 - undergraduate curriculum in / **96**
 - teaching majors and minors in / **63**
 - Full-time students
 - credit requirements for / **49**
 - in Graduate School / **117**
 - Gem of the Mountains* (yearbook) / **15**
 - General business
 - degrees offered in / **35**
 - undergraduate curriculum in / **58**
 - General examinations
 - for doctor's degree / **125**
 - General information / **9**
 - General regulations and procedures / **37**
 - General requirements for baccalaureate degrees
 - grades / **44**
 - residence / **43**
 - in English composition and physical education activity courses / **43**
 - General science
 - teaching major in / **63**
 - Genetics
 - courses in / **221**
 - Geographic distribution of students / **340**
 - Geography
 - degrees offered in / **35-36**
 - courses in / **222**
 - undergraduate curricula in / **96, 111**
 - teaching majors and minors in / **63**
 - department of / **107**
 - Geological engineering
 - degrees offered in / **35-36**
 - undergraduate curriculum in / **111**
 - Geology
 - degrees offered in / **35-36**
 - courses in / **224**
 - undergraduate curricula in / **111**
 - teaching majors and minors in earth science / **63**
 - Idaho Bureau of Mines and / **109, 310**
 - summer camp / **110**
 - department of / **107**
 - Geometry
 - high school units required in / **20**
 - German
 - degrees offered in / **35**
 - courses in / **209**
 - undergraduate curriculum in / **96**
 - teaching majors and minors in / **63**
 - Grades
 - explanation of / **40**
 - disqualification because of / **46**
 - reporting of / **41**
 - system for graduate students / **118**
 - Graduate assistants
 - educational privilege of / **26**
 - see also* Assistantships
 - Graduate faculty
 - see* separate graduate bulletin
 - Graduate School
 - admission to / **24**
 - degrees, programs and regulations of / **113**
 - majors and degrees offered by / **36**
 - Graduate study
 - in College of Agriculture / **52**
 - in College of Education / **60**
 - in College of Engineering / **68**
 - in College of Forestry, Wildlife and Range Sciences / **78**
 - in College of Letters and Science / **89**
 - in College of Mines / **106**
 - Graduation requirements
 - general / **43**
 - Grants
 - economic opportunity / **10**
 - in College of Mines / **109**
 - Greek
 - courses in / **211**
 - Health and accident insurance
 - general provision for / **14, 26**
 - for foreign students / **24**
 - Health Center
 - hospitalization covered in / **26**
 - Health education
 - teaching minor in / **63**
 - see also* Physical education
 - Health excuses / **47**
 - High school courses
 - repeat of / **40**
 - High school unit
 - defined / **20**
 - History
 - degrees offered in / **35-36**
 - courses in / **228**
 - undergraduate curriculum in / **96**
 - teaching majors and minors in / **63**
 - advanced placement in / **42**

- department of / **87**
- History and growth of the University / **9**
- Home economics
 - degrees offered in / **35-36**
 - courses in / **232**
 - curricula in / **96-98**
 - accreditation of / **335**
 - department of / **88**
- Home economics extension / **305**
- Honorary societies / **335**
- Honors
 - requirements for general / **45**
 - courses in / **235**
 - in College of Engineering / **68**
 - in College of Law / **83**
 - in College of Letters and Science / **90**
- Hospitalization
 - in Student Health Center / **26**
- Housing
 - general provisions covering / **28**
 - costs of / **29**
 - rules and regulations for / **49**
- Humanities courses
 - in College of Letters and Science / **91**
 - in music / **260**
- Hydrology
 - degrees offered in / **36**
 - courses in / **236**
 - see also* Agricultural engineering courses
- Idaho Bureau of Mines and Geology / **109, 310**
- In-absentia registration
 - see* Absentia courses
- Incompletes
 - explanation of and removal of / **41**
- Industrial education
 - degrees offered in / **35-36**
 - courses in / **237**
 - undergraduate curriculum in / **64**
 - teaching minors / **63**
- Instructional assistants
 - see* Assistantships
- Instructional conferences
 - description of / **131**
- Insurance
 - in residence halls / **31**
 - see also* Health and accident insurance
- Intercollegiate athletics
 - eligibility for participation in / **46**
- Interdisciplinary studies
 - degrees offered in / **35**
 - courses in / **240**
 - undergraduate curriculum in / **98**
- Interfraternity Council / **32**
- Interior design
 - degrees offered in / **35-36**
 - undergraduate curriculum / **92**
- International students
 - see* Foreign students
- Intramural sports
 - eligibility for participation in / **46**
- Italian
 - courses / **211**
- Journalism
 - degrees offered in / **35**
 - courses in / **240**
 - undergraduate curricula / **98**
 - teaching majors and minors / **63**
- Junior colleges
 - admission from / **22**
- Junior standing
 - credits required for / **48**
- Laboratory fees / **25**
- Landscape architecture
 - degrees offered in / **35**
 - undergraduate curriculum in / **92**
 - see also* Architecture
- Language requirements
 - for B.A. and B.S. degrees / **91**
 - for master's degree / **120**
 - for doctor's degree / **123**
 - see also* Foreign languages
- Languages
 - advanced payment in / **42**
 - see also* Foreign languages
- Late registration fee / **26**
- Latin
 - degrees offered in / **35**
 - undergraduate curriculum in / **98**
 - teaching majors and minors in / **63**
- Law
 - degrees offered in / **35-36**
 - courses in / **242**
 - curriculum in / **83**
 - arts and law combined curriculum / **98**
 - business and law combined curriculum / **57**
- Law,
 - College of
 - admission to / **23**
 - degrees and curriculum in / **80**
 - accreditation of / **335**
- Leave of absence
 - granted by dean / **47**
 - for special investigations by graduate students / **123**
- Letters and Science
 - College of
 - admission to / **20**
 - degrees and curricula / **85**
- Library / **12**

- Library fines / **27**
- Library science
 - courses in / **244**
 - teaching minor in / **63**
- Limit, time
 - see* Time limit
- Livestock management
 - undergraduate curriculum in / **53**
- Living accommodations
 - see* Housing
- Load limitations
 - see* Credit limitations
- Loan funds
 - general / **10**
 - in College of Mines / **109**
- Major(s)
 - offered by the University / **35-36**
 - credits required for undergraduate / **45**
- Major professor
 - appointment of / **120**
- Management
 - undergraduate curriculum / **58**
- Marketing
 - degrees offered in / **35**
 - curricula in / **58**
- Married students
 - housing for / **28**
- Master's-degree regulations / **120**
- Masters research and thesis
 - maximum credits applicable to degree / **121**
- Mathematics
 - degrees offered in / **35-36**
 - courses in / **245**
 - undergraduate curriculum in / **98**
 - advanced placement in / **42**
 - teaching majors and minors / **63**
 - high school units required in / **20**
 - department of / **88**
- Matriculation **37**
- Mechanical engineering
 - degrees offered in / **35-36**
 - courses in **249**
 - undergraduate curriculum in / **71**
- Medical studies (pre-medical studies)
 - degrees offered in / **35**
 - preparatory program in / **88**
 - undergraduate curriculum in / **102**
 - accreditation of / **335**
- Medical technology
 - undergraduate curricular option / **93**
- Medicines
 - undergraduate curricular option / **93**
- Medicines
 - charge for special / **26**
- Men
 - housing requirements / **28**
- Metallurgical engineering
 - degrees offered in / **35-36**
 - undergraduate curriculum in / **112**
 - see also* Metallurgy
- Metallurgy
 - courses in / **253**
 - department of / **107-108**
- Midsemester grades
 - report of / **41**
- Military science
 - teaching minor in / **63**
 - see also* Air Force ROTC, Army ROTC, Naval ROTC, and Reserve Officers Training Unit
- Mine surveying
 - summer camp / **110**
- Mines
 - College of
 - admission to / **20**
 - degrees and curricula in / **106**
 - accreditation of / **335**
- Mines and Geology
 - Idaho Bureau of / **109, 310**
- Minimum class size / **48**
- Mining
 - professional degrees in / **126**
- Mining engineering
 - degrees offered in / **35-36**
 - courses in / **256**
 - undergraduate curriculum in / **112**
 - department of / **107-108**
- Mining Research Bureau / **109**
- Mission of the University / **11**
- Museology
 - courses in / **259**
- Museum / **12**
- Music
 - degrees offered in / **35-36**
 - courses in / **260**
 - undergraduate curricula in / **99-101**
 - minor in / **99**
 - teaching minor in / **63**
 - accelerated program for high school juniors in / **99**
 - credit limitations in / **44**
 - eligibility for participation in extra-curricular activities in / **47**
 - special fees in / **260**
 - accreditation of / **335**
- National Reactor Testing Station (Idaho Falls)
 - graduate program in / **114, 128**
 - undergraduate program in / **128**
 - faculty members in / **328**
 - certificate of general proficiency under / **129**

- Natural science
 - high school units required in / **20**
- Naval ROTC
 - courses in / **226**
 - program in / **134**
 - see also* Naval science
- Naval science
 - degree offered in / **35**
 - undergraduate curriculum in / **101**
- News
 - radio-television news option / **98**
- Non-degree programs
 - undergraduate / **90**
 - graduate / **116**
- Non-high school graduates
 - admission of / **21**
- Non-matriculated status
 - admission to / **22**
- Non-resident instruction
 - maximum credit in / **44**
- Non-residents
 - status of / **26**
 - admission of / **19**
- Normal schools
 - admission from / **22**
- Nuclear engineering
 - degrees offered in / **36**
 - courses in / **267**
- Nursing studies (pre-nursing studies)
 - programs in / **103**
- Observation and visitation
 - in public schools / **61**
- Office administration
 - degrees offered in / **35**
 - courses in / **268**
 - undergraduate curriculum in / **58**
- Office occupations
 - option under business education / **64**
- Officers
 - administrative / **2**
- On-campus employment / **10, 15**
- Orchestra
 - credit limitation in organized music courses / **44**
- Organizations
 - student / **16**
 - use of classrooms by / **48**
- Organized music
 - credit limitation in / **44**
- Painting
 - undergraduate curricula in / **93**
- Paleontology
 - geology curricular option / **111**
- Panhellenic Council / **32**
- Partial enrollment
 - in Graduate School / **116**
- Part-time employment / **10, 15**
- Pass-fail option / **38**
- Performance studies in music
 - curricula in / **99-100**
- Permits to register
 - upon admission / **18**
 - in classes / **37**
- Personnel services
 - student / **13**
- Petitions
 - to academic deans / **37**
 - to Graduate Council / **117**
 - to Administrative Council / **37**
- Pets
 - in family housing / **33**
- Phi Beta Kappa / **335**
- Phi Kappa Phi / **335**
- Philosophy
 - degrees offered in / **35-36**
 - courses in / **269**
 - undergraduate curriculum in / **101**
 - department of / **87**
- Photography
 - courses in / **270**
- Physical education
 - degrees offered in / **35-36**
 - courses in / **271**
 - undergraduate curricula in / **64**
 - teaching majors and minors in / **63**
 - all-university requirements in / **43**
- Physical science
 - courses in / **275**
 - teaching majors and minors in / **63**
- Physical therapy (pre-physical therapy)
 - degrees offered in / **36**
 - undergraduate curriculum in / **103**
- Physics
 - degrees offered in / **36**
 - courses in / **275**
 - curricula in / **101-102**
 - teaching majors and minors in / **63**
 - advanced placement in / **42**
 - credit by examination in / **275**
 - high school units required in / **20**
 - department of / **88**
- Placement services / **13**
- Plant sciences
 - degrees offered in / **36**
 - courses in / **279**
 - undergraduate curricula in / **53**
- Political science
 - degrees offered in / **36**
 - courses in / **281**
 - undergraduate curriculum in / **102**
 - teaching majors and minors in / **63**
 - department of / **88**
- Poultry science

- degrees offered in / **36**
- courses in / **149**
- undergraduate curriculum in / **53**
- see also* Animal industries
- Pre-dental studies
 - see* Dental studies
- Pre-law
 - see* Law
- Pre-medical studies
 - see* Medical studies
- Pre-nursing
 - see* Nursing studies
- Pre-veterinary medicine
 - see* Veterinary science
- Preliminary examinations
 - for doctoral students / **124-125**
- Preparatory programs
 - in medicine and dentistry / **88**
- Prerequisite courses
 - review of / **40**
- Probation (scholastic)
 - defined / **45**
 - removal of / **46**
- Professional certificate
 - in education / **126**
- Professional degrees / **126**
- Property damage
 - in residence halls / **31**
- Psychology
 - degrees offered in / **36**
 - courses in / **285**
 - undergraduate curriculum in / **104**
 - teaching majors and minors in / **63**
- Public Affairs Research
 - Bureau of / **310**
- Radiological science
 - degrees offered in / **36**
- Radio-television
 - degrees offered in / **36**
 - courses in / **288**
 - undergraduate curriculum in / **104**
 - journalism news option in / **98**
- Range livestock management
 - undergraduate curriculum in / **53**
- Range management
 - degrees offered in / **36**
 - undergraduate curriculum in / **77**
- Readmission
 - after disqualification / **46**
- Real estate
 - undergraduate curriculum in / **58**
 - certificate program in / **129**
- Recency of credit
 - for master's degree / **120**
- Recreation
 - degrees offered in / **36**
 - undergraduate curriculum in / **65**
 - activities / **15**
 - program during summer school / **128**
 - see also* Forestry courses
- Refund of fees
 - general regulations covering / **27**
 - of application fee / **18**
- Regents
 - Board of / **2**
- Registration
 - general regulations and procedures for / **37-38**
 - changes in / **38**
 - defined for pass-fail option / **38**
 - requirements for graduate students / **117**
 - fees / **25**
 - pending removal of incompletes / **41**
 - eligibility to reregister / **46**
- Regulations
 - general academic / **37**
 - conduct / **49**
 - student's responsibility for compliance with / **37**
- Religion
 - courses in / **290**
 - credit limitation in / **44**
- Religious activities / **16**
- Repeat
 - of high school courses in college / **40**
 - of college courses / **41**
- Repeated absences
 - report of / **47**
- Requirements
 - University's right to change / **9**
- Reregistration
 - see* Registration
- Research
 - Mining Research Bureau / **109**
- Research and advisory councils / **333**
- Research Council
 - Steering Committee members / **333**
- Research Council and Research Foundation / **308**
- Reserve Officers' Training Corps / **132**
- Residence requirements
 - for baccalaureate degree / **43**
 - for master's degree / **120**
 - for doctor's degree / **123**
- Residence halls
 - application for / **29**
 - costs / **29**
- Residence Halls Association / **31**
- Resident status
 - defined / **26**

- Residents
 - fees for / **25**
- Resource management (forestry)
 - undergraduate curriculum / **75**
- Room Rental
 - fees and regulations / **29**
- Rushing program
 - for fraternities and sororities / **32**
- Russian
 - courses in / **212**
- Scholarships
 - general information about / **10**
 - in College of Mines / **109**
 - in ROTC programs / **133-135**
- Scholastic aptitude test / **19**
- Scholastic probation
 - defined / **45**
 - disqualification because of / **46**
- School visitation / **61**
- Science
 - teaching majors and minors in / **63**
- Sculpture
 - undergraduate curricular options in / **93**
- Secondary education
 - degrees offered in / **36**
 - undergraduate curriculum in / **62**
- Second baccalaureate degree
 - requirements for / **45**
- Secretarial studies
 - see Office administration
- Senior standing
 - credits required for / **48**
- Services
 - student personnel / **13**
- Short courses
 - admission to / **22**
- Sigma Xi (national honorary scientific society) / **335**
- Smoking / **49**
- Social activities / **15**
- Social science
 - degrees offered in / **36**
 - courses in / **291**
 - teaching majors and minors in / **63**
 - high school units required in / **20**
- Social work
 - undergraduate curriculum in / **104**
- Socio-anthropology
 - teaching minor in / **63**
- Sociology
 - degrees offered in / **36**
 - courses in / **292**
 - undergraduate curriculum in / **104**
 - teaching majors and minors in / **63**
- department of / **89**
- Soils
 - degrees offered in / **36**
 - courses in / **293**
 - undergraduate curricula in / **53**
- Sophomore standing
 - credits required for / **48**
- Sororities
 - chapters on campus, costs and membership arrangements in / **32**
- Spanish
 - degrees offered in / **36**
 - courses in / **212**
 - undergraduate curriculum in / **104**
 - teaching majors and minors in / **63**
- Special awards / **14**
- Special activities
 - requests for / **48**
- Special education
 - degrees offered in / **36**
 - undergraduate curriculum in / **65**
 - teaching minor in / **63**
- Special students
 - admission as / **22**
 - in College of Law / **82**
- Speech
 - degrees offered in / **36**
 - courses in / **296**
 - undergraduate curriculum in / **104**
 - teaching majors and minors in / **63**
 - department of / **87**
- Spouses
 - educational privilege of / **26**
- Staff members
 - list of / **331**
 - educational privilege of / **26**
- Steering Committee of the Research Council
 - members / **333**
- Statistics
 - consolidated enrollments / **338**
 - geographic distribution of students / **340**
- Student Affairs
 - Office of / **13**
- Student counseling / **13**
- Student employment / **10, 15**
- Student events / **15**
- Student fees / **24**
- Student government / **15**
- Student housing
 - general regulations covering / **28, 49**
 - costs of / **29**
- Student loans / **10**
- Student organizations
 - use of classrooms by / **48**

- Student personnel services / **13**
- Student teaching / **61**
- Student Union / **15**
- Student yearbook / **15**
- Subtitled courses
 - credits in / **138**
- Summa cum laude
 - requirements for the awarding of / **45**
- Summer non-matriculated status
 - admission to / **23**
- Summer school / **128**
- Supervisory committees
 - for graduate students / **116**
- Supplies and books
 - estimated cost of / **25**
- Teacher certification
 - recommendation for / **60**
 - through College of Education / **60**
 - through College of Letters and Science / **90**
- Teacher education
 - admission to / **60**
 - continuance in / **60**
 - planned fifth-year program in / **116**
 - accreditation of / **335**
 - M.A.T. program in / **122**
- Teaching
 - student / **61**
- Technical education
 - degrees offered in / **36**
 - undergraduate curriculum in / **65**
- Television
 - courses in / **288**
 - curricula / **98, 104**
- Textiles (clothing, textiles and design)
 - undergraduate curriculum in / **97**
- Theolog (committee) / **16**
- Thesis
 - submission of / **121**
 - binding fee / **27**
 - maximum credit applicable to master's degree / **121**
- Time limit
 - for graduation under a particular catalog / **45**
 - for master's degree / **120**
 - for doctor's degree / **123**
- Transcripts
 - required for admission / **18**
 - fee for / **27**
- Transfer credit
 - from junior colleges / **22**
 - for master's degree / **120**
- Transfer students
 - admission to University of / **19**
 - catalog applicable to / **44**
- in music curricula / **99**
 - to College of Education / **59**
- Trigonometry
 - high school units required in / **20**
- Tuition
 - non-resident / **26**
- Unit
 - high school
 - definition of / **20**
- University
 - history of / **9**
- Veterinary science
 - degrees offered in / **36**
 - courses in / **297**
 - undergraduate curriculum in / **53**
- Vocational teacher education
 - degrees offered in / **36**
 - courses in / **298**
 - undergraduate curriculum in / **65**
- Vocational units
 - number permitted for admission / **20**
- Warnings
 - scholastic
 - procedures for / **46**
- Washington State University
 - cooperative graduate program with / **114**
- Water Resources Research Institute / **306**
- Wildlife management
 - degrees offered in / **36**
 - undergraduate curriculum in / **77**
- Withdrawal
 - University's right to request / **9**
 - procedures and regulations covering / **42**
 - for classes / **39**
 - refund of fees upon / **27**
- Women
 - housing requirements / **28**
- Wood utilization technology
 - degrees offered in / **36**
 - undergraduate curricula in / **76**
- Workshops
 - admission to / **22**
- Work-study program / **10**
- X-rays
 - special charges for / **26**
- Year
 - academic year defined / **49**
- Yearbook (*Gem of the Mountains*) / **15, 25**
- Zoology
 - degrees offered in / **36**
 - courses in / **299**
 - undergraduate curriculum in / **105**
 - teaching majors and minors in / **63**
 - department of / **86**

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