1-1-1970

1970-1971 Course Catalog

University of Montana–Missoula. Office of the Registrar

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for further information

write to:

admissions
Director of Admissions
Main Hall 207

financial aid
Director of Financial Aid
Main Hall 209

housing
Director of Residence Halls
Elrod Hall
or
Manager of Family Housing
Elkhorn Court

summer session
Director of Summer Session
Field House 219

general information
Information Services
Main Hall 302

all addresses are followed by
University of Montana
Missoula, Montana 59801
calendar 1970-1971 ...

1970

AUTUMN QUARTER
September 21, Monday __________ Orientation
September 22-23, Tuesday and Wednesday __________ Registration
September 24, Thursday __________ Instruction begins
November 11, Wednesday __________ Veterans' Day, a holiday
November 23-27, Monday through Friday __________ Thanksgiving holiday
December 14-18, Monday through Friday __________ Examinations
December 18, 5:20 p.m. __________ Winter Quarter ends
Christmas recess begins

1971

WINTER QUARTER
January 4, Monday __________ Registration
January 5-6, Tuesday and Wednesday __________ Instruction begins
February 12, Friday __________ Lincoln's Birthday, a holiday
February 15, Monday __________ Washington's Birthday, a holiday
February 17, Wednesday __________ Charter Day
March 18-20, Tuesday through Saturday __________ Examinations
March 20, 5:20 p.m. __________ Spring Quarter ends
Spring recess begins

SPRING QUARTER
March 29, Monday __________ Registration
March 30, Tuesday __________ Instruction begins
May 31, Monday __________ Memorial Day, a holiday
June 8-12, Tuesday through Saturday __________ Examinations
June 12, 5:20 p.m. __________ Spring Quarter ends
June 13, Sunday __________ Commencement

SUMMER SESSION
June 21, Monday (6 weeks and First Half-Session) __________ Instruction begins
July 26, Sunday and Monday __________ Independence Day holiday
July 21, Wednesday __________ First Half-Session ends
July 22, Thursday __________ Second Half-Session begins
August 20, Friday, 5:20 p.m. __________ Summer Session ends

AUTUMN QUARTER
September 20, Monday __________ Orientation
September 21-22, Tuesday and Wednesday __________ Registration
September 23, Thursday __________ Instruction begins
October 11, Monday __________ Columbus Day, a holiday
October 21, Monday __________ Veterans' Day, a holiday
November 22-26, Monday through Friday __________ Thanksgiving holiday
December 13-17, Monday through Friday __________ Examinations
December 17, 5:20 p.m. __________ Autumn Quarter ends
Christmas recess begins

1970-1971 Calendar

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about the university . . .

FOUNDING AND NAME . . . The University of Montana at Missoula was chartered February 17, 1893, by the Third Legislative Assembly. Later legislation changed the name to the State University of Montana and Montana State University. On July 1, 1985, it again became the University of Montana.

LOCATION . . . Missoula, a city of approximately 50,000 persons, is located at an elevation of 3,205 feet on the western slope of the Rocky Mountains at the confluence of five valleys—Flathead, Bitterroot, Clark Fork, Blackfoot and Frenchtown.

ACREDITATION . . . The University of Montana is fully accredited by the Northwest Association of Secondary and Higher Schools.

Each of the professional schools or departments with additional accrediting is approved by the appropriate national accrediting organization: the American Association of Collegiate Schools of Business, the American Chemical Society, the National Council for Accreditation of Teacher Education, National Association of Schools of Music, Society of American Foresters, American Council on Education for Journalism, Association of American Law Schools and the American Council on Pharmaceutical Education.

SUPPORT AND ENDOWMENT . . . Federal land grants made available during territorial days were allocated to the University on its creation. It continues, however, to receive its main support in the form of biennial legislative appropriations and student fees. It also receives gifts, grants and endowments for scholarships, teaching, development and research from private and other sources. The University of Montana Foundation, among others, is a tax-exempt trust, separately chartered and managed to receive, manage and distribute private contributions for University purposes.

CONTROL AND ADMINISTRATION . . . Subject to the Montana constitution and statutes, general control and supervision of all Montana state institutions of higher education are vested in the eleven-member State Board of Education, ex-officio Regents of the Montana University System. There is also a local three-member Executive Board for each institution. The administration of each institution is vested in a president.

By statute, the State's combined system of higher education is called the Montana University System. The office of the executive secretary is located in the State Capitol at Helena.

The right is reserved to change any of the rules and regulations of the University at any time including those relating to admission, instruction and graduation. The right to withdraw curricula and specific courses and to impose or increase fees similarly is reserved. All such changes are effective at such times as the proper authorities determine and apply not only to prospective students but also to those who already are enrolled in the University.

FUNCTIONS AND GOALS . . . The University of Montana is responsible for providing: (1) undergraduate education in the arts and sciences, (2) professional and advanced professional education based on a sound foundation of arts and sciences, (3) graduate education, including doctoral programs, in selected fields, (4) research and other creative activities supported by both public and private sources and maintaining (5) a vigorous program of service as part of its responsibility to the state and the nation.

The University's program of undergraduate education makes available to the student a fund of knowledge pertaining to the world in which he lives and to the heritage of free men and institutions. It seeks to liberate his intellectual capacities for continued learning and to deepen his awareness of ethical and aesthetic values. It fosters these goals through (1) teaching that stimulates the student and inspires him to continue, on his own, the search for knowledge; (2) a campus environment that sustains the efforts of teachers and students to achieve the basic objectives for which the University exists; and (3) a curriculum that: (a) provides reasonable depth in the several liberal arts disciplines—the biological, physical and social sciences, the humanities and the fine arts, (b) requires demonstrated literacy in use of the English language and encourages competence in foreign languages, (c) provides opportunity for development of professional and technical competence in some field of endeavor, (d) reveals man's great insights and discoveries of the past and stimulates the individual to seek new insights and discoveries, (e) draws curricula and specific courses and to impose or increase fees similarly is reserved. All such changes are effective at such times as the proper authorities determine and apply not only to prospective students but also to those who already are enrolled in the University.

facilities . . .

PROPERTY . . . The main University campus spreads over 116 acres on the east side of Missoula. There are an additional 624 acres on Mt. Sentinel. A few blocks south of the main campus is a 154-acre site with 394 married student housing units and a nine-hole golf course. Approximately six miles south of the main campus is Missoula where the University owns a parcel of 295 acres. Two major UM facilities are located outside Missoula: 20,850 acres in Lubrecht Experimental Forest, 35 miles northeast of Missoula, and 167 acres on Flathead Lake including the Biological Station, 90 miles north of Missoula at Yellow Bay.

LIBRARIES . . . Campus libraries have over 500,000 volumes in their collections, including extensive holdings of periodicals, maps, microtext, government publications and a special Northwest History collection. The library is a regional depository for United States Government documents and for the Army Map Service.

THE UNIVERSITY BIOLOGICAL STATION is located at Yellow Bay on the east shore of Flathead Lake, 90 miles north of Missoula. The University controls 160 acres, including two islands, and has permission to carry on investigation on Wild Horse Island, an area of approximately 2,000 acres.

Facilities include an administration-recreation building, a four-room laboratory, three one-room laboratories, a kitchen and dining hall, three bath houses, thirty-five one-room and four-room laboratories, and various maintenance buildings. These facilities and the new Morton J. Elrod Research Laboratory, dedicated in August 1967, enable a year-round program of research and teaching.

During the summer, field courses and research in botany and zoology are offered for upper division and graduate students. By virtue of the station's location, there is opportunity for research in many fields of biology.

The Bureau of Business and Economic Research of the School of Business Administration is set up to provide Montana businessmen with the types of statistics useful to them in conducting their businesses; to disseminate information of general interest on the economic and social aspects of the state; and to engage in studies in the areas of economic and other social sciences which show promise of making contributions to knowledge, or to the development of methods of analysis, regardless of whether such studies are related directly to the state.

Publications include the Montana Business Quarterly and various monographs. Contributors include members of the bureau staff, the faculty, and on occasion, students.

THE FOREST AND CONSERVATION EXPERIMENT STATION of the School of Forestry operates under Chapter 141, Laws of Montana of 1897. The dean of the School of Forestry was designated as director. The act specifies that the purposes of the station are:
"To study the growth and the utilization of timber . . . To determine the relationship between the forest water conservation and the forest fire prevention; the forest and the protection of wildlife; the forest and the regulation of windbreaks, shelter belts and woodlots on the farms of the State . . . To study logging, lumbering and milling operations and other operations dealing with the products of forest soils with special reference to their improvement . . . "

"To cooperate with the other departments of the Montana University System, the state forester and the state board of land conservation and the fish and wildlife and game commission, the state livestock commission . . . the United States government and its branches as a land grant institution, or otherwise, in accordance with their regulations."

"To collect, to compile and to publish statistics relative to Montana forests and forestry and the influence flowing therefrom: to prepare and publish bulletins and reports . . . to collect a library and bibliography of literature pertaining to or useful for the purpose of this act . . . to establish such field experiment stations . . . to accept for and in behalf of the State of Montana, such gifts of land or other donations as may be made."

The station is supported by funds appropriated by the congress and the State of Montana, income from the sale of forest products, grazing permits and special leases, and by private grants. Research is concentrated on the 27,000-acre Lubrecht Experimental Forest and at appropriate locations throughout the state—much of it in cooperation with private, state and federal agencies.

Information derived from research conducted by the staff is made available to the people of Montana in printed bulletins, leaflets and circulars.

THE BUREAU OF GOVERNMENT RESEARCH, an adjunct of the Department of Political Science, furnishes an opportunity for independent faculty research, provides a training ground for undergraduate and graduate students and serves public officials and civic groups through organizing institutes and preparing publications. It is an information clearinghouse with collections of state legislative materials and publications of governmental agencies and similar bureaus. Publications include a bimonthly series entitled the Montana Public Affairs Report and an occasional series of pamphlets and monographs prepared by bureau staff, university faculty and other professionals in the field.

WILDLIFE RESEARCH UNIT. . . The Montana Cooperative Wildlife Research Unit was established at the University of Montana in 1949. The unit is staffed and supported cooperatively by the Montana Fish and Game Commission, the Fish and Wildlife Service, and the Wildlife Management Institute of Washington, D.C., and the University of Montana.

The purpose of the Cooperative Wildlife Research Unit is stated in the Memorandum of Understanding signed jointly by representatives of the above cooperating agencies as follows: . . . "To provide full active cooperation in the advance- ment, organization, and operation of wildlife education, re- search, extension and demonstration programs . . . "

The Montana Unit, through its graduate research fellowship program, investigates wildlife problems approved by the Unit Coordinating Committee in order to make it possible for the commission to improve management of the wildlife resources for the citizens of Montana. At the same time, this research work carried on under the supervision of the unit leader and University faculty contributes to the training of graduate students in the fields of wildlife management and wildlife biology.

Graduate work in wildlife leads to a Master of Science in Wildlife Biology, which ordinarily requires two years of work beyond the bachelor's degree.

The Cooperative Wildlife Research Unit allocates funds for about four graduate research fellowships for students working toward a Master of Science in Wildlife Biology, or a Ph.D. in Zoology or in Forestry and Botany. No special form is required to apply for one of these fellowships; simply apply for admission. All students admitted to the graduate program are automatically considered for fellowships.

For application forms and information related to graduate work in wildlife, write to Graduate Studies in Wildlife Biology.
TRANSFER REQUIREMENTS . . .

RESIDENT: A legal resident of Montana who wishes to transfer to the University of Montana must meet the general requirements, be eligible to return to the school from which he is transferring, and have a record which would assure his admission to or reinstatement at the University of Montana had he been one of its students.

NONRESIDENT: A nonresident applicant wishing to transfer to the University of Montana must meet the general admission requirements, be eligible to return to the school from which he is transferring, and present transcripts verifying a 2.0 (C) average for all college and university work attempted to be eligible for consideration for admission.

SPECIAL STUDENTS . . . An applicant 21 years or older who does not meet the minimum requirements for regular admission as a freshman or an applicant who does not wish to work toward a degree may apply for consideration for admission as a special student. Examples of applicants generally considered for admission as special students are: (1) students who have earned a bachelor's degree and wish to take refresher courses or courses for their personal benefit, and (2) mature students who have been granted permission to enroll for selected courses without reference to the requirements of any prescribed course of study.

Special students may acquire status as regular students and become candidates for degrees either (a) by taking entrance examinations or (b) by transferring to entrance credit sufficient credits earned in the University to make up all entrance requirements for admission to regular standing. A special student may not register for his seventh quarter of residence, including summer quarters, until all entrance units required for admission to regular standing are completed.

APPLICATION FEE . . . A nonrefundable application fee of $10.00 (check or money order, NOT CASH) must be sent with the application for undergraduate or special admission. Applicants with a bachelor's degree are not required to pay this fee. No action will be taken on an application until this fee has been received in the Office of Admissions.

HOW TO APPLY FOR ADMISSION . . .

FRESHMEN APPLICANTS: 1. Montana residents may obtain the application for admission from their high school principal or guidance counselor. Nonresident applicants may obtain a copy of the application for admission by writing to the Director of Admissions, University of Montana, Missoula, Montana 59801.

   2. The completed application, with the exception of the high school transcript and the Counseling Information and Personal Characteristics form, should be sent directly to the Director of Admissions. The transcript form and the Counseling Information and Personal Characteristics form should be given to your high school principal or guidance counselor for completion.

   3. The $10.00 application fee should be attached to the application form sent by the student.

TRANSFER APPLICANTS: 1. A transfer applicant may obtain an application for admission by writing to the Director of Admissions, University of Montana, Missoula, Montana 59801.

   2. The applicant should complete all of the application, with the exception of the high school transcript form and the Transfer Students Confidential Check Sheet. The completed application should be sent to the Director of Admissions.

   3. The high school transcript form should be sent to the high school from which you graduated. This is required even though your high school graduation may be listed on your college transcript.

   4. The Transfer Students Confidential Check Sheet should be sent to the Dean of Students at the last institution attended.

   5. Request an official copy of your transcript from each college or university attended. Although an applicant's record from several institutions may be summarized on one transcript, an application will not be considered until an official transcript from each institution has been received. These are required even though no credit may have been earned.

   6. The $10.00 application fee should be attached to the application form. Applicants who have earned a bachelor's degree are not required to submit this fee.

WHEN TO APPLY FOR ADMISSION . . .

FRESHMEN APPLICANTS: Freshmen applicants may apply for admission anytime after they have completed their junior year in high school. Resident applicants are not required to submit an official copy of their high school record until they have graduated. Nonresident applicants must submit an official copy of their high school record before a decision will be made regarding their admission.

TRANSFER APPLICANTS: Transfer applicants should apply for admission during the last term they plan to attend their present school, providing this date is within six months of the time they plan to enroll at the University of Montana. 

APPLICATION DEADLINES: Complete credentials should be on file in the Office of Admissions by September 1 if the applicant wishes to be admitted for the Autumn Quarter. Applications for the Winter Quarter or Spring Quarter should have their credentials on file at least one month prior to registration for the appropriate quarter.

NOTIFICATION OF ADMISSION DECISION . . .

Freshmen applicants will be notified of their admission or refusal approximately two weeks after the completed credentials have been received by the Office of Admissions. Transfer applicants will also be notified of their admission or refusal approximately two weeks after their completed credentials have been received in the Office of Admissions. If there is some question regarding the acceptability of some credit this decision may be delayed.

TRANSFER OF CREDIT . . . In general, transfer of credits from other accredited collegiate institutions will be accepted insofar as they meet the degree, grade, and residence requirements of the student's chosen program of studies at this institution. Credit is given for the courses in which a grade of A, B, C, or D has been earned. An evaluation of credits which are being accepted by the University of Montana is sent to the applicant shortly after the notification of acceptance.

ADVANCED PLACEMENT . . . Advanced placement with University credit may be allowed for college level high school courses, agreed upon in advance by the High School and the University. Validation for credit will be determined by the University from scores earned by the student on University-constructed examinations or on the advanced placement tests of the College Entrance Examination Board.

TESTING . . . All new freshmen, and transfer students with less than a full year in college, are required to take the AMERICAN COLLEGE TESTING PROGRAM examination preferably in October or December of the year before entrance into the university. The test also is offered in February, April and July. Complete information and registration forms are sent to all high school counselors and principals well in advance of each test date. If information is not available when you register, write to Director of Admissions, University of Montana, Missoula, Montana 59801.

Examination results are used for general advising purposes, to assist in identifying students with high college potential who may be seeking scholarships, for placement in English and as part of the information used to determine nonresident admissions.

New freshmen who do not take the AMERICAN COLLEGE TESTING PROGRAM examination in advance and have the results sent to the University will pay an $8 registration fee and take it on campus before they register.

Students from non-English speaking countries who wish to qualify for admission to the University must give evidence of proficiency in English. Students should arrange to take the Test of English as a Foreign Language (TOEFL). Requests for information on test procedures and applications should be directed to:
Test of English as a Foreign Language
Education Testing Service
Princeton, New Jersey 08540

When the student arranges to take the test, he may request the EDUCATIONAL TESTING SERVICE (ETS) to send the examination results to the Director of Admissions, University of Montana, Missoula, Montana 59801.

HEALTH EXAMINATION . . . Every applicant who is admitted to the University of Montana is required to submit a Health Examination before he is permitted to register. This form is sent to the applicant along with the letter of acceptance and should be completed by the applicant's physician as soon as possible. The completed form should be mailed directly to the University Health Service.

**registration . . .**

Registrations are during Orientation Week, in advance of, and at the beginning of other quarters. A student's registration is subject to the approval of an appointed faculty adviser until choice of major field of study has been made. After that choice, the head (or his delegate) of the department or school in which the curriculum is offered becomes the adviser. Students may not register after one week of classes. Registration is not complete until all fee charges are paid and registration cards are checked in to the Registrar's Office.

**ORIENTATION . . .** Part of the first week of autumn quarter is set aside for orientation and registration. The program includes: (1) acquainting the student with the campus, the classroom buildings and residence halls; (2) explaining the University program—the types of instruction offered and the careers for which a student may prepare at the University; (3) placement tests; (4) social gatherings at which students become acquainted with fellow classmen, students of other classes and members of the faculty; and (5) official registration in the University, with the assistance of a member of the faculty in the selection of courses.

**WAIVER OF PREREQUISITE . . .** Instructors must file with the Registrar's Office a "Waiver of Prerequisite" form for any student allowed in a course without meeting the stated prerequisite.

**WITHDRAWAL OF A COURSE . . .** The University reserves the right to withdraw any course for which fewer than five students are enrolled before the opening of the course.

**CHANGES IN PROGRAM OF STUDIES . . .** Courses may be added during the first week of a quarter. After the first week, courses may be added only with the consent of the adviser, the instructor and the student's department chairman (or dean). To drop or add courses, change from credit to listener or vice versa, the student must secure a drop/add card from the Registrar's Office and return it to that office after obtaining the required signatures. Withdrawal from a course is permitted during the first three weeks of instruction with a "W" (withdrawal, no credit). Withdrawal after three weeks with a "W" or a change from credit to listener status will be granted upon petition only in exceptional cases and upon the signed approval of the student's adviser. An "F" will be assigned for a withdrawal after the third week unless a petition has been granted. All exceptional requests are reviewed by the faculty Graduation Committee. The committee's decision is final. Advisers are required to meet with the Graduation Committee or supply the committee with a written statement in support of their advisee's petition for exceptional consideration.

**WITHDRAWALS FROM THE UNIVERSITY . . .** Students who withdraw from the University during a quarter are required to fill out withdrawal forms in the Registrar's Office. If this is not done, the student will not be entitled to certification of honorable dismissal, and "F" grades are assigned. When withdrawal forms signed by the dean or associate dean of students are filed before the end of the ninth week of a quarter, grades of "W" are assigned. Withdrawal after three weeks with a "W" or a change from credit to listener status will be granted upon petition only in exceptional cases and upon the signed approval of the student's adviser. An "F" will be assigned for a withdrawal after the third week unless a petition has been granted. All exceptional requests are reviewed by the faculty Graduation Committee. The committee's decision is final. Advisers are required to meet with the Graduation Committee or supply the committee with a written statement in support of their advisee's petition for exceptional consideration.

**degrees and majors . . .**

Bachelor's, master's, doctor of education and doctor of philosophy degrees are offered at the University of Montana. The degrees of bachelor of arts and bachelor of science typically are awarded upon completion of a four-year academic course in the arts and sciences. These degrees require satisfaction of the foreign language requirement and completion of a major (a concentration in a single discipline or stated interdisciplinary program) of not more than 20 quarter credits. The bachelor of science degree is awarded in home economics and in health and physical education without a foreign language.

Professional degrees, with stated exceptions, provide for suitable emphasis on knowledge and skills appropriate to the profession concerned for suitable background in other areas of knowledge including those basic to the profession. The degrees Bachelor of Arts in Business Administration (not the B.S. in Business Administration), Bachelor of Arts in Journalism and Bachelor of Arts in Radio-Television require satisfaction of the foreign language requirement.

Details about degree requirements are found under the curricula listed alphabetically later in the catalog.

Graduate degrees offered at the University, including detailed degree requirements, are listed in the Graduate School bulletin which may be secured from the dean of the Graduate School.

**COLLEGE OF ARTS AND SCIENCES**

Bachelor of Arts, with majors in:

- Anthropology
- Astronomy
- Biology
- Botany
- Chemistry
- Classics
- Greek (No Major)
- Latin
- Economics
- Economics-Political Science
- Economics-Sociology
- English
- French
- Geography
- Geology
- German
- Health and Physical Education
- History
- History-Political Science
- Home Economics
- Italian
- Liberal Arts
- Mathematics
- Microbiology
- Philosophy
- Physics
- Political Science
- Political Science-Economics
- Political Science-History
- Pre-Medical Sciences
- Psychology
- Recreation
- Russian
- Social Welfare
- Sociology
- Sociology-Economics
- Spanish
- Speech Communication
- Speech Pathology and Audiology
- Zoology

Bachelor of Science, with majors in Chemistry, Computer Science, Economics, Health and Physical Education, Recreation and Home Economics

Bachelor of Science in Dental Hygiene, Medical Technology, Physical Therapy and Wildlife Biology
PROFESSIONAL SCHOOLS
Bachelor of Arts in Business Administration
Bachelor of Science in Business Administration
Bachelor of Arts in Education
Bachelor of Arts, from the School of Fine Arts, with majors in Art, Drama or Music
Bachelor of Fine Arts with major in Art or Drama
Bachelor of Music, from the School of Fine Arts, with majors in Applied Music and Theory or Composition
Bachelor of Music Education, from the School of Fine Arts, with majors in Elementary Music, Choral Conducting, Instrumental Conducting, Choral and Instrumental Conducting and Music Administration
Bachelor of Science in Forestry
Bachelor of Science in Resource Conservation
Bachelor of Arts in Journalism
Bachelor of Science in Pharmacy
Bachelor of Arts in Radio-Television

ADVANCED PROFESSIONAL DEGREES
Bachelor of Laws
Juris Doctor

academic requirements . . .

REQUIRED COURSES . . . Regular students must so arrange their studies, quarter by quarter, that they will normally complete all required courses and group requirements by the end of their third year at the University except in their field of specialization.

SPECIALIZATION . . . A student must select a major field of study before entering the junior year at the University.

MAXIMUM CREDIT LOAD . . . Except for students registering in an approved curriculum, the maximum credit load is 18 hours. To be included within the maximum of 18 credit hours are physical education courses and courses which carry no credit, such as English 001 and Math 001. Courses which carry no credit count toward the maximum load according to the number of class hours per week.

All requests for credits beyond the maximum must be approved by the student's major dean (professional schools) or department chairman (College of Arts and Sciences).

MINIMUM SCHOLASTIC REQUIREMENTS . . . A student may be dropped from the University or placed on probation any quarter if his record is very unsatisfactory.

In order to graduate, a minimum grade-point average of "C" or 2.0 is required in (1) all college work attempted, (2) all college work undertaken at the University of Montana and (3) all work attempted in the major field.

<table>
<thead>
<tr>
<th>Number of Credits Attempted</th>
<th>Minimum Cumulative GPA Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-44</td>
<td>1.6</td>
</tr>
<tr>
<td>45-89</td>
<td>1.75</td>
</tr>
<tr>
<td>90-134</td>
<td>1.9</td>
</tr>
<tr>
<td>135 or more</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Students who at the end of any quarter do not, based on credits attempted, attain and maintain grade-point averages (GPA's) as shown above are placed on scholastic probation.

Students on probation are urged to check in at the Counseling and Testing Center for possible assistance.

A student on scholastic probation will be dropped at the end of the probationary quarter if his cumulative GPA fails to meet minimum standards, except that an average of 2.0 or better for work taken during a probationary quarter will allow such student to continue on probation.

A student dropped for the first time, after the lapse of three quarters from the time dropped, may be readmitted upon application to the registrar. A student thus readmitted is on scholastic probation.

A student (a) dropped more than once or (b) wishing to be readmitted after the first time dropped, before the lapse of three quarters, may be readmitted only by the dean of the college or school to which he wishes to be admitted. A student so readmitted is on scholastic probation.

The burden of proving clearly that his case should be an exception to the rules is upon the student.

REPEITION OF A COURSE . . . If a course with credit earned is repeated and a passing grade or F is received, the first grade and credit are canceled and only the credit attempted and last grade received are counted, even if the last grade is lower. A second F (or more) for a course does not cancel an F. Unless repeated with a passing grade, all hours of F for an attempted course are used in calculating the grade-point average.

INDEPENDENT WORK . . . Credit is allowed superior students of junior and senior standing for independent work in which they have registered in an approved curriculum, the maximum credit allowed is 18 hours. To be included within the maximum of 18 hours are non-credit courses and (b) certain seminars and other courses. A student who has credit for equivalent material in high school cannot receive University challenge credit for it.

Challenge credit will be granted on a grade of B or better earned in an examination which must be at least in part written.

Maximum challenge credit allowed is 30 credit hours with no more than 20 credit hours in any one department.

A fee of $3 per credit hour is charged. Such examinations are available only to regularly enrolled students.

GRADES . . . The class work of the student will be rated as follows: A—work of the best grade; B—work better than average; C—work average; D—work below average, but barely passing; F—failure; X—not pass (no credit allowed, not counted in grade-point average); P—pass without defining the grade, credit applies toward graduation; I—incomplete, given if all work in a course has not been completed and there is sufficient reason for this, will be changed to an F if the work is not completed during the student's next quarter of attendance); N—work on the course may be continued in subsequent quarters (when work is completed, a final grade is assigned which applies to all quarters of the course); W—withdrawal from course.

Three systems of grading are used: (1) A through F—traditional letter grades; (2) Pass/Fail—applies only to (a) non-credit courses and (b) certain seminars and other courses in the 500-600 series stressing independent work, which are designated by the department or school and announced in advance. The P grade must apply to all registrants in the course; (3) Pass/Not Pass—in order to encourage students to venture into courses where they might otherwise hesitate because of uncertainty regarding their aptitude or preparation they may enroll in certain courses on a Pass/Not Pass basis. Any student may enroll on a Pass/Not Pass basis in Health, Physical Education and Recreation 100 courses. A freshman or sophomore with a grade-point average of 2.0 or better may, in addition, take no more than one resident undergraduate course per quarter on a Pass/Not Pass basis. Juniors and seniors may take more than one Pass/Not Pass course per quarter. No more than sixty Pass/Not Pass credits can be counted toward graduation. This
privilege does not extend to courses required for the student's major, except at the discretion of the department concerned. The grades of Pass or Not Pass are not formally defined in terms of their relationship to the traditional grades of A, B, C, D, or F; a "P" is given for work considered to be passing, and a "X" for work not passed. All undergraduate courses offered on a Pass/Not Pass basis will also be offered on a letter-grade (A-F) basis. Courses taken on the Pass/Not Pass option will not be computed in a student's grade-point average, but credits earned in courses graded Pass constitute degree credit up to the sixty-credit maximum. All courses taken and the grades received under the Pass/Not Pass option will be recented upon request. Election of the Pass/Not Pass option must be indicated at registration time on the official program request card. After registration, but prior to the end of the sixth week of instruction, an undergraduate student may, upon request to the Registrar, change a Pass/Not Pass enrollment to an enrollment under the A-F grade system, but he may not do the reverse. Courses offered for a letter grade (A-F) only will be indicated on the Schedule of Classes.

Grade points are computed as follows: 4 grade points for each credit of A; 3 grade points for each credit of B; 2 grade points for each credit of C; and 1 grade point for each credit of D.

The cumulative grade-point average is computed by dividing total grade points earned by the total number of hours undertaken, excluding non-credit courses, courses assigned W, P, X, I, or N and courses numbered under 100.

QUALITY OF WORK... A minimum grade-point average of "C" or 2.0 is required in (1) all college work attempted, (2) all college work undertaken at the University of Montana and (3) all work attempted in the major field.

To continue in third-year major courses, at least a 2.0 (C) average is required on all credits previously registered for and for which final grades have been received in major courses. This also applies to teaching majors.

REQUIRED COURSES... All candidates for the bachelor's degree must meet the following requirements:

1. Physical education, 3 quarters (3 credits), required of all students unless excused for cause. Discharged veterans and students 27 or more years of age are excused from this requirement. These 3 credits must be completed during the first two years of attendance.
2. English composition may be required by schools or departments for any or all of their majors. English 100 must be taken during the freshman year. English 300 and 450, if required, may be taken in any of the three remaining years, but in no case will any student be allowed to take both English 300 and English 450 in the same year.

Place in English is determined by the ACT examination. Students who fail to demonstrate an acceptable college placement in English is determined from the ACT examination. Those who fail to demonstrate an acceptable college placement will be excused upon application from not to exceed 3 quarter credits of English composition.

GROUP REQUIREMENTS... All candidates for the bachelor's degree must meet for graduation credits from the four groups listed below. Distribution requirements will be met by completing approved courses in groups as follows: Groups I and II. Complete Alternative A or B:

A. At least 12 credits in Group I or Group II with at least 8 of the 12 credits in one discipline; and an additional course of at least 3 credits in the other group. One of the courses must include laboratory work.

B. General 131-132 and two additional courses in Group II.

Groups III and IV. At least 12 credits in each of Groups III and IV; in each group at least 6 of the required 12 credits must be in one discipline.

Group I Life Sciences
- Biology: Only General 131-132
- Botany: Any course
- Microbiology: All courses except 111
- Psychology: Only 111, 206, 212, 310-311-312
- Zoology: All courses

Group II Physical Sciences and Mathematics
- Astronomy: All courses
- Chemistry: All courses
- Geology: All except 300, 301, 302, 306
- Mathematics: All except 130, 220, 249
- Physics: All courses

Group III Social Sciences
- Anthropology: All except 358
- Economics: All courses
- Geography: All except 301, 302, 306, 370, 371
- Political Science: All courses
- Sociology: All except 204 and 205

Group IV Humanities
- Art: 200, 201, 202, 210 and 383 through 397
- Drama: 101, 201-202-203, 301-302-303
- General: All Humanities courses
- History: All courses
- Literature: All English Lit courses except 161, 162
- Foreign Languages: All Lit courses except 211, 212 when offered to meet foreign language requirements.
- Music: Either 125 or 126
- Philosophy: All except 210, 301, 302, 303
- Religion: All courses
- Speech Communication: 234, 301, 314, 316, 353

In the combination major, history and political science, may meet only Group III or Group IV requirements with courses in history and political science.

Elementary education majors may meet requirements in Group I and II with General 125-126-127 and 9 credits in mathematics excepting 249.

For degrees in forestry.

FOREIGN LANGUAGE REQUIREMENTS... For the degree of bachelor of arts from the College of Arts and Sciences, bachelor of arts from the School of Fine Arts, Bachelor of Arts in Business Administration and Bachelor of Arts in Journalism, a knowledge of either a modern or classical foreign language is required. Particular languages (e.g. French, German) may be specified by certain departments or schools. Provided the languages involved are acceptable to the student's major department, this requirement may be met in any of the following ways: (1) by high school transcripts showing that the student has completed four years of one language or two years in each of two languages; (2) by taking, in the University, five quarters of one language or three quarters in each of two languages; (3) by a combination of high school and University foreign language study acceptable to the foreign language department as the equivalent of (2) above; and (4) in exceptional cases, by passing a reading examination at the level of attainment expected of a student who has passed at least five quarters of a foreign language at this University. Undergraduate reading examinations are given and certified by the foreign language department. Arrangements for such examinations must be made by the end of the fourth week of any quarter. The examination will be given on the seventh Saturday of the quarter.

PLACEMENT IN FOREIGN LANGUAGES... A student who has received credit for a modern foreign language in high school (but not in a college or university) and who wishes to continue that foreign language at this University should enroll as follows: four years of a language in high school, courses numbered 300 and above; three years in high school, 212 or 202; two years in high school, 211 or 201; one year in high school, 102, or if some time has intervened, 101.

RESIDENCE REQUIREMENTS... Students who transfer credits earned elsewhere and seek a degree from the University must, in addition to meeting other requirements, earn not less than 24 quarter credits and 36 semester credits toward a bachelor's degree and be required to live at least three quarters to resident study at the University; and 35 of the last 45 credits earned for a degree must be earned in resident study at the University. Extension credits earned on campus count toward residence requirements for undergraduate degrees, but correspondence credits do not.
requirements for graduation...

CATALOG GOVERNING GRADUATION... A student may graduate under University requirements for the year in which he was enrolled for the first time in any institution of higher education in the United States provided he completes graduation requirements within a continuous six-year period. If a student interrupts his attendance for a year or more, he must graduate under the catalog in effect at the time of readmission. A change of major requires the student to change only to major course requirements in effect at that time. A student may, with the approval of his present department chairman, graduate under a later catalog than that under which he entered.

CANDIDACY FOR A DEGREE... Students at the University who are admitted as candidates for a degree must have satisfied the following conditions: (a) they must have fulfilled the entrance requirements of regular students; (b) they must complete the general University requirements shown in the following paragraphs. Students who are candidates for degrees or certificates must file formal applications with the registrar on the date specified on University Notices. Applications must be filed at least one quarter preceding the quarter in which requirements are to be completed.

CREDITS REQUIRED FOR A DEGREE... Normally credits assigned to a course are equated in the following way: one credit for each 50 minutes of lecture with two hours of preparation for the lecture expected of the student. Credit granted for laboratory work is normally one credit hour per week during a three-hour laboratory session. A total of 195 credits, including 3 credits of required physical education and excluding all other credits in basic physical education, basic ROTC, Mathematics 001 and English 001 is necessary in all courses for graduation with a bachelor's degree except that more are required in art, law and pharmacy. Candidates for the degree of Bachelor of Laws or Juris Doctor must complete three years of law totaling 90 semester hours in addition to the entrance requirements of the School of Law. Admission to candidacy for the degree of Juris Doctor include graduation from an approved college or university. Candidates for the degree of Bachelor of Science in Pharmacy must complete a five-year course. Candidates for the bachelor of art degree from the College of Arts and Sciences must complete 99 credits in that college, except that credits in art and drama may be included. The professional degree, Bachelor of Fine Arts, requires 110 credits in art.

CREDITS REQUIRED FOR A MAJOR... Students may be required to complete from 45 to 70 credits in the chosen field. For degrees in education, the number of credits is from 40 to 50. All curricula allowing 5 credits of a survey course to count as part of major requirements, the total maximum of 70 credits allowed in the major includes these 5 credits. This rule on maximum credits allowed does not apply in the Schools of Business Administration, Forestry, Journalism, Law and Pharmacy. Exceptions to these regulations may be made on the basis of entrance credits in the Department of Foreign Languages and Mathematics.

CREDIT LIMITATIONS... Not more than 18 credits in advanced ROTC courses nor 15 credits in religion may be counted toward graduation. Credit in denominational religion courses is not accepted.

Except in the music department, not more than 12 credits in performance music (Music 100, 201 through 401, 114 through 119; 125, 126, 127, 128, 129, 130) nor 6 credits in ensemble music (Music 105 through 110, and 140) may be counted toward graduation.

Only students majoring in business administration or those taking a major in business administration in business administration are allowed to present more than 19 credits earned in Business Administration 180-181-182, 183, 184-185-186, 187-188-189 and 190-191.

CORRESPONDENCE STUDY... Up to 30 credits earned by correspondence study may be counted toward graduation.

REQUIREMENTS OF PARTICULAR CURRICULA... Candidates for a bachelor's degree must comply with any requirements announced under a particular curriculum, in addition to meeting the general requirements listed here under requirements for graduation.

SENIOR EXAMINATIONS... Some departments and schools in the University require a senior comprehensive examination as part of graduation requirements. This examination does not in any way replace the regular quarterly examinations except that departments adopting or using these senior examinations may excuse their major students during the senior year from regular quarterly examinations in major department subjects. The examination is a written examination of at least three hours length, and additional oral or written examinations may be given. Examinations are given the last quarter of senior residence and are arranged by the department or school at the convenience of the persons concerned. If the student fails to pass this special examination, he shall be given another opportunity within the next six months without the necessity of taking additional courses. In case of a second failure, further opportunity will be granted at the discretion of the department or school concerned and the committee on graduation. For details, check under the alphabetically listed curricula in the catalog.

GRADUATION WITH HONORS OR HIGH HONORS... A student with a grade-point average at the beginning of his senior year of 3.5 or higher for all credits attempted on his entire record as well as in the major field will be graduated with honors. To graduate with high honors, the student must meet these requirements with a grade-point average of 3.75 or higher, and in addition, must pass an honors examination (written or oral) administered by the department or school. The results of such examinations are to be certified by the department chairman or dean to the registrar as "A" or "B" level.

A student who transfers credits earned elsewhere to this university must meet these requirements on grades earned at the University of Montana as well as on his entire record.

After these qualifications have been met, the candidate for honors or high honors must receive the recommendations of his major department and the faculty of the University of Montana.

In the School of Law, the grade-point average is computed on law credits only.

summer session... The summer session consists of two 4 1/2 week half-sessions and a concurrent nine-week session. Students may attend either half-session or the full nine-week session. The 1971 summer session will open June 21 and close August 20; the first half-session, June 21 to July 21; the second half-session, July 22 to August 20.

Regular University students may accelerate their programs by taking summer classes. Students may earn 16 quarter credits in the nine-week session.

Completion of 45 credit hours, including one full summer quarter, will satisfy the residence requirements for the master's degree.

Courses will be offered in all of the basic arts and sciences, as well as in the areas of business administration, education, journalism, pharmacy and fine arts. Both graduate and undergraduate work are offered in most of these areas.

Courses required for Montana secondary and elementary teachers certificates will be offered. Graduate work will include courses for secondary teachers, elementary teachers and for administrator's credentials.

Special field work in botany and zoology is given at the University Biological Station at Flathead Lake. Regular courses in botany and zoology are given on the campus.

Full information regarding the summer session may be obtained from the individual department or school of instruction or from the coordinator of summer session.
the graduate school . . .

For information on graduate degrees offered, admission to the Graduate School, general requirements for graduate degrees and graduate courses, write to the dean of the Graduate School.

Detailed information on requirements for particular degrees, a copy of the Graduate School Catalog, and application forms for admission to graduate work may be secured by writing to the dean of the school or the department chairman involved. Send complete return address, including zip code number.

financial obligations . . .

PAYMENT OF FEES by check in exact amount of bill is preferable. Personal checks are not cashed except in payment of University bills. Foreign checks in U.S. Funds are subject to bank clearing charges. Currency or checks that are not in U.S. funds should be exchanged at a local bank before payment is made to the University.

SUMMARY OF EXPENSES . . . This does not include fees for special purposes such as applied music and forestry. Married students living in University-operated family housing pay rental rates varying from $66 to $114 a month depending on the size and type of apartment.

Board and room rates probably will hold for the year. However, in the event of material increases in costs, rates may be increased accordingly.

<table>
<thead>
<tr>
<th>Montana Resident</th>
<th>Autumn</th>
<th>Winter</th>
<th>Spring</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fees</td>
<td>$138.00</td>
<td>$138.00</td>
<td>$138.00</td>
<td>$414.00</td>
</tr>
<tr>
<td>Res. Halls Board</td>
<td>218.00</td>
<td>194.00</td>
<td>194.00</td>
<td>606.00</td>
</tr>
<tr>
<td>Room (Double)</td>
<td>98.00</td>
<td>98.00</td>
<td>98.00</td>
<td>294.00</td>
</tr>
<tr>
<td>Books, Supplies, Est.</td>
<td>50.00</td>
<td>50.00</td>
<td>50.00</td>
<td>150.00</td>
</tr>
<tr>
<td>Total Mont. Res.</td>
<td>504.00</td>
<td>400.00</td>
<td>400.00</td>
<td>1,440.00</td>
</tr>
<tr>
<td>Students not residents of Montana add:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of Montana add:</td>
<td>222.50</td>
<td>222.50</td>
<td>222.50</td>
<td>667.50</td>
</tr>
<tr>
<td>Total non-res.</td>
<td>726.50</td>
<td>702.50</td>
<td>702.50</td>
<td>2,131.50</td>
</tr>
</tbody>
</table>

aNon-refundable admissions application fee not included (see admissions).

NON-RESIDENT STUDENTS are those minors whose parents are non-residents and others who, though legally entitled to establish their own residence, have not complied with Montana law to do so. For more information, prospective students write to the director of admissions and others to the registrar.

STUDENT FEES . . . The following is a detailed schedule of quarterly fees authorized for the University year 1970-71 in all schools and departments except where otherwise specified. For the law school, which is on a semester plan, the semester fees will be 50% above the quarterly fees. Fees are subject to modification by action of the State Board of Regents.

Registration is not complete until all fee charges are paid and registration cards turned in at the Registrars Office.

The University offers no deferred payment plans. Students are expected to make financial arrangements prior to registration. The Financial Aid Office will try to help you solve your financial problems. Students should be financially able to attend at least one quarter without assistance. New students with cash scholarships, grants and merit of awards must notify the Scholarship Officer of the University well in advance of registration week if they wish to use these funds during the Autumn quarter.

The following is a detailed schedule of quarterly fees authorized for the University year 1970-71 in all schools and departments except where otherwise specified. For the law school, which is on a semester plan, the semester fees will be 50% above the quarterly fees. Fees are subject to modification by action of the State Board of Regents.

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ALL STUDENTS REGISTERED FOR SEVEN OR MORE CREDITS

<table>
<thead>
<tr>
<th>Registration</th>
<th>$ 15.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Many honor scholarships entitle the holder to a waiver of the registration and incidental fees)</td>
<td></td>
</tr>
<tr>
<td>Incidental (for laboratory supplies in all courses, diploma, etc.)</td>
<td>60.00</td>
</tr>
<tr>
<td>Building</td>
<td>20.00</td>
</tr>
<tr>
<td>Student Union</td>
<td>10.00</td>
</tr>
<tr>
<td>University Center Operating</td>
<td>5.00</td>
</tr>
<tr>
<td>Student Activity</td>
<td>15.00</td>
</tr>
<tr>
<td>For support of activities sponsored by the Associated Students of the University of Montana. (Optional to students who have a B.A. or B.S. degree and to students registered for less than seven credits.)</td>
<td></td>
</tr>
<tr>
<td>Health Service Fee (Required of all students enrolled for class work.)</td>
<td>13.00</td>
</tr>
<tr>
<td></td>
<td>$138.00</td>
</tr>
<tr>
<td>aMotor Vehicle Registration Fee (drivers only)</td>
<td>9.00</td>
</tr>
<tr>
<td>Total fall quarter</td>
<td>147.00</td>
</tr>
<tr>
<td>If registered for less than 7 credits, the non-resident fee is based on a charge of $100.00 plus an $11.25 non-resident building fee.</td>
<td></td>
</tr>
<tr>
<td>(Required of all students enrolled for class work.)</td>
<td>$225.50</td>
</tr>
</tbody>
</table>

Refer to the forestry and music sections for information on additional forestry and music fees.

WAR SERVICE FEE EXEMPTIONS . . . The registration and incidental fees are waived for honorably discharged persons who served with United States armed forces in any of its wars and who were bona fide residents of Montana at the time of their entry into the armed forces. This is in accordance with an act of the Legislature of 1943 as amended by the Legislature of 1945. These exemptions are not available to students who are eligible to qualify for benefits under federal laws. Students must apply for these war service exemptions, at which time the original or certified copy of discharge must be submitted for identification purposes.

REGISTRATION UNDER P.L. 634 or 815 . . . Subsistence payments from the Veterans' Administration are based on the number of hours of work for which the student is registered. A minimum of 14 credit hours is required for full payment.

LIMITED REGISTRANTS (students registered for less than seven credits): registration fee $15; incidental fee $30; building fee $10; Student Union $5; University Center Operating $2.50; Health Service $13; student activity $15 (optional). Non-residents pay (in addition to other fees stated here) $10, plus $11.25 additional non-resident building fee. Students who are enrolled as regular students who wish to drop to limited registrants should see statements under regular refund schedule.

LISTENERS (students who enroll for courses without credit) pay the same fees as students enrolled for credit. This applies to regularly registered students only.

GRADUATE STUDENTS pay the same fees as under-graduate students except that graduate students whose programs require expensive laboratory equipment, laboratory supplies and additional books may be required to pay a graduate laboratory- incidental fee not to exceed $50 per quarter. The student activity fee is optional to students who have a B.S. or B.A. degree.

TERMINAL GRADUATE STUDENT FEE . . . A $25 per quarter fee is charged graduate students, both resident and non-resident, who are not enrolled in courses but whose activities involve the use of University resources.
FEES FOR SPECIAL PURPOSES...

LATE REGISTRATION: The charges are $10 for the first day late, $5 for each day of registration thereafter, to a maximum of $24, payable by students who did not register during the period designated for registration, unless their late registration was due to the fault of the University. The fee also is payable by students who register during the prescribed registration period except for payment of fees.

DISHONORED CHECKS: "A service charge of $2.50 will be assessed each time a check is returned; this amount will be charged to the individual's account, and he will be so notified. If it is not cleared within five days, a second notice will be sent and appropriate administrative action will be taken."

"Any check tendered in payment of registration fees and returned by the bank may result in postponement of the student's registration, and the student will then be subject to the late registration fee."

CHANGE OF ENROLLMENT: Effective the fourth day of classes, $2.

SPECIAL EXAMINATION: For each special examination, $2; maximum, $5 for any one quarter.

REMOVAL OF INCOMPLETE: $2 per course.

TRANSCRIPT OF RECORD: $1 each after the first which is free of charge.

CREDIT BY EXAMINATION: A fee of $3 per credit hour is charged.

FIELD TRIPS: Certain departments require field trips, the cost of which is a personal expense prorated among the students in the course. Check the department involved for such courses.

SUMMER FEES are listed in the Summer Session and Biological Station bulletins.

REFUNDS... All fees, except the $15 registration fee and the $10 admission application fee are refunded to students who withdraw before the beginning of classes. No fee refunds are made after the fourth week of instruction (except music). Students who withdraw after the beginning of classes but before the end of the fourth week will be refunded according to the refund schedule published below. Applied music refund is based on a charge of $1.75 per ½-hour lesson for the number of weeks elapsed since the beginning of the quarter.

The Remedial English, Remedial Math, Forestry Fee and Music Building Fee are refunded at 50% during the first week of instruction. No refunds are given thereafter.

Refunds are calculated from date of application for refund and not from date of last attendance at classes except in cases of illness or other unavoidable causes. No refunds are made if application for refund is delayed beyond close of quarter for which the fees were charged.

<table>
<thead>
<tr>
<th>Regular Students</th>
<th>Week of Instruction</th>
<th>First</th>
<th>Second</th>
<th>Third</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration</td>
<td></td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Incidental</td>
<td></td>
<td>75%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Building</td>
<td>100%</td>
<td>50%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Student Union</td>
<td></td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>University Center Operating</td>
<td></td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Student Activity</td>
<td>100%</td>
<td>50%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Health Service</td>
<td>100%</td>
<td>50%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Non-Resident Tuition</td>
<td></td>
<td>80%</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>The fee also is payable by students who register during the prescribed registration period except for payment of fees.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

After the third week of instruction, there shall be no refunds of fees except that in the fourth week of classes, 20% of the non-resident fee will be refunded.

<table>
<thead>
<tr>
<th>Regular Students Who Drop</th>
<th>To Limited Registrants</th>
<th>Week of Instruction</th>
<th>First</th>
<th>Second</th>
<th>Third</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration</td>
<td></td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Incidental</td>
<td></td>
<td>40%</td>
<td>20%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Building</td>
<td></td>
<td>50%</td>
<td>25%</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>Student Union</td>
<td></td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>University Center Operating</td>
<td></td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Student Activity</td>
<td>100%</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Health Service</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Non-Resident Tuition</td>
<td>40%</td>
<td>30%</td>
<td>20%</td>
<td>20%</td>
<td></td>
</tr>
</tbody>
</table>

student organizations...

The University encourages a full and well-rounded program of activities designed to stimulate students' intellectual, vocational and social interests. Among the types of student extracurricular-activities program for University students and faculty. The building includes student legislative chambers, offices, lounges, work areas, music listening rooms, hobbies and craft areas, art gallery, conference areas, ballroom, coffee shops, bowling lanes, billiard and ping pong areas and food services. In addition students have access to a nine-hole University golf course and a large modern swimming pool.

student services...

THE COUNSELING AND TESTING CENTER has a general function of giving guidance and assistance to students in the following areas: (1) selection of appropriate area or major study; (2) assessment of abilities and the most efficient, effective application of those abilities to allow for maximum learning in college; (3) diagnoses of difficulties leading to less than maximum performance academically and the setting of remedial procedures; and (4) selection of appropriate vocational area.

The Counseling and Testing Center has a further responsibility of (1) administering, reporting and aid in the interpretation of freshman placement tests and other standardized tests; (2) acting as a consultant to University departments and high schools in the establishment of effective testing programs; (3) assisting University personnel and welfare groups in their guidance function; and (4) advising on request, in working with students.

Services of the Counseling and Testing Center are available without charge to regularly enrolled students. Charges are made for services to non-students.
THE STUDENT HEALTH SERVICE is available to registered students who pay the Student Health Service fee. This service safeguards the health of students through health education, preventive medicine and medical treatment of acute diseases.

The services provided are comprehensive and include medical attention and advice from the University's full-time physicians and from certain consulting specialists in the local medical society. The student is protected by this service only while enrolled and not during vacation periods or between quarters. Therefore, it is strongly suggested that students enroll in the supplemental Blue Cross health insurance program which is inexpensive and extends protection to the student through the vacation periods between quarters and during the summer. This insurance is offered at the time of registration.

The Health Service Building contains a dispensary and semi-private patient rooms for students requiring confinement for general medical care or isolation for communicable diseases. The Health Service staff includes physicians, nurses, laboratory technician and an X-ray technician. Facilities are available 24 hours a day with dispensary hours from 9 a.m. to noon and 1:30 to 5 p.m.

A medical examination, tuberculin skin test (or chest X-ray) and immunizations are required of all entering students. These are pre-enrollment requirements. These have been confirmed and at the student's expense before he enters on campus. A health record containing the above information must be submitted to the University prior to registration.

Health Service privileges are not available to members of the faculty or members of the student's family (see below for family protection under Blue Cross). Obstetrical care and non-emergency surgery are not covered. Illnesses arising from activities contrary to University regulations or due to use of alcohol or drugs are not covered. Injuries resulting from automobile accidents are not covered; therefore, it is advised that automobile insurance be adequate to take care of medical costs.

Hospitalization in local hospitals is provided when necessary through the Student Health Service. The Health Service may pay for 15 days hospitalization at $15 per day, and $100 may be applied to extras (medicine, X-ray and laboratory work). The Health Service Building also houses the State Mental Hygiene Clinic.

THE OPTIONAL BLUE CROSS SUPPLEMENTAL HEALTH PLAN has been worked out through the Faculty-Student Health Committee to make it possible for students to obtain low-cost year-around health care protection during the four academic years they are undergraduates at the University of Montana and to allow married students health care protection for their dependents. Under this plan, which costs the single student $3.50 per quarter for the autumn, winter and spring quarters and $6.00 for the summer, the student may protect himself against the costs of illnesses that exceed 15 days per quarter of hospitalization (the limit under the Student Health Service Plan) and illness and accidents occurring between quarters and during the summer months. The married student, under this optional plan, can gain health care protection for his wife and dependents with one of three optional plans ranging in cost from $22.20 to $66.00 per quarter for the autumn, winter and spring quarters and for the summer session. Details of the plan are available from Montana Blue Cross, 3360 10th Avenue South, Great Falls, from the Dean of Students Office and from the University Health Service.

THE SPEECH AND HEARING CLINIC provides needed services, without charge, to any student desiring them. These services include detailed diagnostic evaluations, consultation, therapy and referral to other clinics as individual needs are indicated.

THE PLACEMENT CENTER endeavors to assist University graduates in finding positions suitable to their interests and professional training. These services are available to the graduates of any college, school or department of the University.

Interview schedulings, employer information and vacancy listings are available for positions in schools, colleges, business, industry and government service. The Placement Center also aids University graduates in later years in finding new positions for which both a degree and experience are required.

University placement services are provided free of charge to graduates except for a $5 fee for compiling credentials. No additional charge is made in subsequent years. All University services are required to live in University residence halls unless excused as special cases by the dean or associate dean of students.

Upperclass, unmarried, undergraduate women under the age of 21 are required to live in women's residence halls or with approved living groups unless excused as special cases by the associate dean of students.

Women students between the ages of 21 and 24, inclusive, may live in the residence halls only as space is, or becomes, available. Women between these ages who are living in residence halls will be held to the academic year contract if (1) they are required to live in the residence halls when they became 21; (2) failed to exercise their option to move out at the beginning of the quarter during which they became 21; (3) failed to exercise their option to move out at the end of the quarter during which they became 21.

With the above exceptions, all students who contract to live in the residence halls (men's or women's) do so for the entire academic year or that portion of it for which they are enrolled.

RESIDENCE HALLS AND FOOD SERVICE. Application forms and detailed information may be obtained by writing the Admissions Office, University of Montana. A prepayment on board and room, as announced in the residence halls bulletin, must accompany each room application. If a room reservation is canceled, notice in writing must be received by the manager of residence halls on or before September 22 for fall quarter, January 2 for winter quarter and March 24 for spring quarter. Students who live in the residence halls are required to board at the Food Service. See Residence Halls Bulletin for board and room rates.

Dormitory charges must be paid in advance at the beginning of the quarter or in installments as arranged with the Financial Aid Office.

Social life in the halls is encouraged through residence hall clubs and numerous activities. Adult and upper class counselors cooperate with the students in making living in the halls enjoyable and beneficial. A fee of $2 per quarter is assessed the residents in each hall.

Board is provided by the Food Service for the residents of all halls. Experienced dietitians provide appetizing and nutritionally adequate meals.

All University food and housing operations are conducted on a self-sustaining basis. Land is acquired, buildings are built and maintenance and operation are financed out of payments for such housing or meals. When costs go up, charges for these services must go up unless the services themselves are to best advantage to suffer uniformly in quality or quantity. New or additional services, when demanded, also require additional charges. Such charges are fixed from time to time, effective on the dates similarly specified.

FAMILY HOUSING . . . Married students may apply to the Family Housing Office for accommodations in modern, moderately priced apartment-type units, located within walking distance of the University campus. Stu-dents, with one, two, three and four bedrooms are available.

THE WOMEN'S COOPERATIVE HOUSE provides an opportunity for women to gain experience in group living while reducing living expenses by sharing in the work of the house. This residence is under supervision of an approved
housemother. Information may be obtained by writing to the President of the Synadelphic House, in care of the Dean of Students Office.

FRATERNITY AND SORORITY HOUSES . . . Nine national fraternities and six national sororities maintain their own residences under University supervision. Membership in fraternities and sororities is by invitation, but eligibility for membership is based on satisfactory scholarship accomplished in high school or the college previously attended. Eligibility for initiation is based on satisfactory academic performance in the University. Sorority houses are under the immediate supervision of resident housemothers who are appointed with the approval of the associate dean of students.

FINANCIAL AID . . . The University participates in the College Scholarship Service (CSS) and the ACT Student Need Analysis Program, which assists in determining the student's need for financial assistance. Undergraduate and graduate students are eligible for many kinds of financial aid, including (1) National and State—Educational Opportunity Grants, Guaranteed Loan Program, Fee Waivers, Law Enforcement Educational Program, National Defense Student Loans, College Work-Study Programs and Veterans Benefits; (2) General University—Scholarships, Loans, Awards and Prizes; (3) Specific University—programs under various schools and departments. Application deadlines for many of the programs are in March and April.

For more information or for copies of the complete listing of University Financial Aid, write to: FINANCIAL AID OFFICE, University of Montana, Missoula, Montana 59801. High school counselors have financial aid applications and detailed information.

standards of student conduct . . .

Misconduct for which students are subject to probation or suspension from the University falls in the following categories:

(1) Dishonesty, such as cheating, plagiarism, or knowingly furnishing false information to the University.

(2) Forgery, alteration, or misuse of University documents, records or identification.

(3) Obstruction or disruption of teaching, research, administration, disciplinary procedures, or other University activities or of other authorized activities on University premises. Such obstruction or disruption, whether involving individual or group conduct, and whether taking the form of force, trespass, seizure, occupation or obstruction of buildings, facilities or property, or of other conduct having such obstructive or disruptive effects, or the inciting of others to any conduct having such effects, is directly opposed to the maintenance of academic freedom and to the accomplishment of the mission of the University.

(4) Physical abuse of any person on University-owned or controlled property, or on the property of fraternities, sororities, or cooperative houses or at University sponsored or supervised functions, or conduct which threatens or endangers the health or safety of any such person.

(5) Theft of or damage to property of the University or of a member of the University community or campus visitor.

(6) Unauthorized entry or use or occupancy of University facilities.

(7) Violation of University policies, rules or regulations concerning student organizations, the use of University facilities, or the time, place and manner of meetings or demonstrations on University-owned or controlled property.

(8) Use, possession or distribution of dangerous drugs except as expressly permitted by law.

(a) Liquor: the use or possession of intoxicating liquor (including beer) in the buildings and on the grounds of the University or in residence halls and quarters of other University-approved living groups or at functions of University students or University organizations (including athletic events) is forbidden. Furthermore, University students are expected to abide by state and federal laws in the use or possession of intoxicating liquor or drugs.

(b) Drugs: use, sale or possession of various drugs including opium, heroin, cannabis, marijuana, Indian hemp, peyote, mescaline, L.S.D., stimulants and depressants are made illegal under both federal and state laws. The punishment for violating these laws is very severe with conviction often resulting in long periods of imprisonment. This is the law. Every student should be fully aware of the risks involved in violating the drug laws.

(9) Violation of University regulations governing students who live in University-owned or controlled property, or in fraternities, sororities, and cooperative houses.

(10) Disorderly conduct or lewd, indecent, or obscene conduct or expression on University-owned or controlled property, or on the property of fraternities, sororities, and cooperative houses, or at University sponsored or supervised functions.

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

(12) Freedom of expression: "The Faculty Senate reaffirms that a fundamental right in the University is the freedom of expression and that it must be upheld. Freedom of expression includes peaceful assemblage and demonstration which does not interfere with the normal operation of the University." Demonstrations which do not involve conduct beyond the scope of constitutionally-protected rights of free speech and assembly are permissible. However, conduct which is otherwise improper cannot be justified merely because it occurs in the context of a demonstration. Demonstrations which involve disorderly conduct, physical abuse of any person, conduct which obstructs or disrupts authorized activities of others upon the campus, conduct which involves misuse of University facilities, or failure to comply with directions of University officials, or conduct which otherwise goes beyond constitutionally-protected rights is a violation of any law, ordinance, or University rule, regulation or policy, will not be permitted. Students will be charged with misconduct for any individual misconduct committed by them in the course of a demonstration.

(13) Unpaid bills: individual students who owe bills to the University for fees, fines, board and room in the residence halls and other charges are not permitted to register for the succeeding quarter, secure transcript of record or obtain diploma until the obligation is paid or satisfactorily adjusted. Similar action is taken when students owe bills to student organizations whose books are kept in the Business Office of the University of Montana, including charges for board and room in fraternity and sorority houses.

(14) Use of motor vehicles: students who bring motor vehicles to the University campus must register them with the Traffic Security Office of the University. Regulations relative to the use of motor vehicles on the campus may be obtained there. (See Student Fees)

Because the University Health plan does not cover injuries sustained in motor vehicle accidents and the optional Student Blue Cross policy (if taken) limits liability to $1,000, all students should be adequately covered by insurance (liability, property damage, medical payments, etc.)

(15) Student marriages: the Montana Statutes on marriage require (a) parents' (or guardian's) consent for men under 21 and women under 18 years of age; (b) a five-day waiting period between the times of application and issuance of the marriage license; and (c) a blood test for both parties. Persons residing in Montana who attempt to evade any of these requirements by excursions into neighboring states run the risk of having the validity of their marriages questioned, conceivably at a later date.

University students are expected to abide by the spirit and intent of the Montana law and, furthermore, must report their marriages to the Dean of Students Office immediately.

(16) Right of appeal: students who for disciplinary reasons have been suspended from the University have a
right to appeal by letter to a faculty-student Board of Judicial Review within three academic days following their suspension.

The Board of Judicial Review is made up of four full-time faculty members selected by the Faculty Senate and three student members chosen by Central Board, governing body of the Associated Students. If three members of the board agree that the case should be reviewed, the student is given a hearing. His status as a student does not change during the period of the review.

After hearing the case, the board reports its recommendation to the dean of students, who either accepts the recommendation or, in the event he disagrees, refers it to the president of the University for final decision.

A complete outline of the organization, functions and procedures of the Board of Judicial Review may be obtained from the office of the dean of students.

Occasionally a student has a disagreement with a University staff member concerning which he feels he should have a right to appeal. In such an event, he should consult the dean of students for advice.

(Note: A new judicial system is under consideration by faculty, students and administration and may go into effect during the 1970-71 academic year.)

ABSENCE FROM CLASS...

DUE TO ILLNESS: Students who are confined to the infirmary or who report to doctors at the infirmary may receive excuses directly from the Health Service for the time they have been so confined or detained by the doctors. The Health Service is not authorized to give excuses except in instances where the student has actually used its services. All other excuses must come from the Dean of Students Office.

DUE TO EXTRA-CURRICULAR ACTIVITIES: When a student's absence from classes is due to his participation in extra-curricular activities, i.e., athletics, debate, drama, etc., the time of his absence must be reported in advance to the dean of students by those in charge of the activity. In all cases, students must fill out a leave of absence card obtained from the Dean of Students Office or the person in charge of the activity. This card must be presented to the students' instructors for their signatures before being returned to the Dean of Students Office.

DUE TO FIELD TRIPS: At least two weeks in advance of a proposed field trip, the instructor in charge should send a memorandum to the dean of his school or college stating the proposed arrangements for and date of the trip as well as the list of the students who will be participating. If the dean of the school or college approves the trip, the instructor will receive from the Dean of Students Office leave of absence cards which will be distributed to the affected students. Each student is responsible for having his cards signed by his various instructors and returned to the Dean of Students Office for filing.

LEAVES OF ABSENCE: A student who is compelled for personal reasons to be absent from the University should obtain a leave of absence in advance from the Dean of Students Office and from his instructors. In case of emergency when it is not possible for the student to see his instructors, the student should notify the Dean of Students Office or the Registrar's Office of his intended absence.

In all cases, work which a student has missed through absence must be made up as his instructors direct.

organization of instruction...

For administrative purposes, various courses and curricula are organized within departments, schools or colleges as shown immediately following. The detailed listing of curricula and courses later in the catalog is alphabetical and includes combined curricula.

COLLEGE OF ARTS AND SCIENCES

Anthropology 
Biology 
Botany 
Chemistry 
Computer Science 
Dental Hygiene 
Economics 
English 
Foreign Languages 
Classics 
Greek (no major) 
Latin 
French 
German 
Italian 
Portuguese (no major) 
Russian 
Spanish

Geography 
Geology 
Health, Physical Education 
and Recreation 
History

Graduate School

Business Administration

Accounting 
Business Education 
Finance 
General Business

School of Education

Administration and Supervision 
Elementary Education 
Guidance and Counseling 
Library Service 
Secondary Education

School of Fine Arts

Art 
Drama 
Music 
Music Education 
Elementary Teacher 
Training 
Secondary Teacher 
Training 
Music History and 
Literature

School of Forestry

Forest Science 
Forest Business 
Forest Resources Management 
Watershed 
Timber 
Wildlife

School of Journalism

Advertising 
Magazines

School of Law

School of Pharmacy

Religious Studies (no major)
14—ANTHROPOLOGY

course numbering system . . .

001-099 Courses below college level. Credit not allowed toward graduation.

100-199 Freshman Courses

200-299 Sophomore courses

300-399 Junior courses

400-499 Senior courses

500-699 Graduate courses

In the School of Pharmacy, senior courses (5th year) are numbered 500 to 599.

Courses are listed under headings, FOR UNDERGRADUATES, FOR UNDERGRADUATES AND GRADUATES, or FOR GRADUATES. Courses listed under the first heading may not be taken for graduate credit even if the numbers are in the 500 or 400 series. Courses under the second heading may be taken for graduate credit if the student secures proper authorization from the Graduate School. Courses under the last heading may be taken by graduate students only.

Thesis and independent studies courses may be so listed as to provide for indication of the subject matter on the permanent record, provided the topic is printed in the schedule of classes.

course descriptions . . .

When reading course descriptions, please note the following:

COURSE NUMBERS: 150, 207-208, 121-122-123, illustrate courses of one quarter, two quarters and three quarters. Hyphenated numbers indicate a course with the same title in a two or three quarter sequence. Unless otherwise stated in a description, 207 would be required before a student could take 208, 121 before 122, 122 before 123.

NUMBER CHANGES: 150 (101) illustrates a course for which the number has been changed from 101 to 150. Numbers formerly used are shown in parenthesis.

QUARTERS: A, Autumn; W, Winter; S, Spring; Su, Summer.

CREDITS: The number following the course title indicates the number of credits for which the course is offered. In two or three quarter sequences, the credits may vary from quarter to quarter in which case the quarter will be indicated along with the credit. (A 5, W 4, S 3, Su 2, etc.)

VARIABLE CREDIT COURSES: A V indicates variation or a specific variation such as V 1-3. Such numbers may be followed by R or an R followed by a number which would indicate that the course might be repeated for credit and the total credits allowed for the course (R-10, etc.).

LECTURE AND LABORATORY: (3-4) illustrates a class with 3 hours of lecture and discussion per week and 4 hours of laboratory. (0-3/cr) illustrates a laboratory course in which the student has 3 hours of laboratory per week for each credit.

ALTERNATE YEARS: Courses not offered every year may be designated by s/y, e/y or o/y (alternate, even, or odd year) following credits (4 e/y).

PREREQUISITES: As indicated above, some courses require other courses as a prerequisite. In these cases, pre-req, followed by numbers, indicates the courses necessary before taking this course. Unless otherwise stated, the numbers are courses in the same department as the course listed.

COREQUISITE: Abbreviated coreq, indicates the courses that must be taken concurrently.

CONSENT OF INSTRUCTOR: If required, is shown by c/i.

EQUAL OR EQUIVALENT COURSE: Shown by an equal sign (=).

The quarter during which courses will be offered will be indicated in a separate schedule of classes.

courses of instruction . . .

ANTHROPOLOGY is the study of man. As a social science it is concerned with people, cultures, and societies on a world-wide scale throughout time. It studies institutional arrangements under which people live, their psychological adjustments to different cultures, and their languages. Emphasis is on primitive or preliterate societies, but the field also includes human evolution, archaeology, and the application of anthropological principles to an understanding of complex civilizations. Bachelor of Arts and Master of Arts degrees are offered in anthropology.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE: In addition to the general requirements for graduation listed earlier in the catalog, 30 credits in anthropology courses or approved cognate courses listed below are required for the Bachelor of Arts degree. A foreign language is required. (See foreign language requirement in the general section of the catalog.) Credits taken in anthropology must include the following groups: Anth 150, 152, 153, 256, 271, 372, 383. In addition, one course in ethnology and one course in archaeology must be taken. Not more than 25 total credits in the following variable credit courses may be counted toward the degree: Anth 333, 366, 451, 530, and 501. The following sociology courses must be completed: Soc 101, 201, and 263. English 360, German 320, and Religion 304 may be counted toward a major in anthropology. A minimum of 35 of the 50 credits required must be in anthropology courses. English 199 and 299 must be completed.

GRADUATE WORK. See Graduate School Bulletin

FOR UNDERGRADUATES

*Course offered every other year

119 PHONETICS see Course Descriptions (Index)

152 MAN AND HIS CULTURE 5. The origin and development of man and his culture, and the processes involved in culture change, e.g., acculturation, diffusion.

153 CULTURAL ANTHROPOLOGY 5. The social life of man; his family structures, his groups and institutions—economic life, religion, political forms, education, and arts.

154 RACE AND MINORITIES 3. Problems of assimilation of racial and cultural minorities.

251 PRIMITIVE TECHNOLOGY 3 prereq 152 or 153. Technological processes used by people in preliterate societies and early civilizations.

285 INTRODUCTION TO FAR EASTERN CULTURE 4 prereq 153 or =. The society, religion, and other aspects of life in the Far East.

FOR UNDERGRADUATES AND GRADUATES

119 PHONETICS see Course Descriptions (Index)

308 RACE AND ETHNIC RELATIONS 3 prereq 154 and Soc 101. Racial and ethnic differentiation and its social consequences.

325 EDUCATIONAL ANTHROPOLOGY 3 prereq 152 or =. Major anthropological concepts of history, prehistory, culture and society. (For educators and social workers or others dealing with American Indians and other minority groups.)

340 *PRIMITIVE RELIGION 3 prereq 152 or 153 and one course in ethnology. Theories and practices of the supernatural phenomena found among primitive peoples throughout the world.

351 *PREHISTORIC CULTURES 3 prereq 152 or 153 or =. Prehistoric man and his cultures, up to the Neolithic, in Europe and the Near East.

352 *ARCHAEOLOGY OF MONTANA 3 prereq 152 or 153 or = and c/i. The origins and distribution of aboriginal cultures in Montana and surrounding regions. Students are required to attend a minimum of three field trips in which actual archaeological sites will be excavated and techniques experimented.

353 ARCHAEOLOGICAL SURVEY Any quarter in which field parties are organized. V 3-9 R-12 prereq 152 or 153 or = and c/i. A field course in Montana archaeology.

364 *OLD WORLD ARCHAEOLOGY 4 Su 3 prereq 152 or 153 or =. The development of civilization from the Neolithic Age to the dawn of written history.

355 *ARCHAEOLOGY OF NORTH AMERICA 4 prereq 152 or 153 or =. The origins, backgrounds and development of pre-Columbian North American peoples and cultures.

366 HISTORICAL ARCHAEOLOGY 3 prereq 152 or 153 or =. The location and evaluation of historical sites in Montana and the Northwest. Techniques utilized in excavating historical sites and systems for the classification of historical site artifacts.
ART—15

THE ART DEPARTMENT functions as an instructional unit, a center for research and development in the visual arts. It is a focal point for exhibitions, lectures, discussions, and other means of presenting the work of the visual artist to the university and the community. Its essential intention is the integration of tradition in the visual media with the present complex of interrelationships among the artistic disciplines which we experience in contemporary society.

The Art Department offers the following degrees: Bachelor of Arts, Bachelor of Fine Arts, Master of Arts in Art, and Master of Fine Arts. The specific requirements for the respective Masters' Degrees may be found in the Graduate School Catalog.

The Department reserves the right to retain, exhibit, and reproduce student work submitted for credit.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN ART. In addition to the general requirements for graduation listed earlier in the catalog the following requirements must be completed for the Bachelor of Arts Degree with a major in Art: 55 or more credits (up to a maximum of 70) including Drawing 12 cr., Design 6 cr., Painting 6 cr., Sculpture 9 cr., Ceramics 2 cr., Printmaking 2 cr., Lettering 2 cr., Photography 2 cr., and electives as desired or needed. One quarter of English composition must be completed.

The Foreign Language requirement listed earlier in the catalog must be satisfied.

The Bachelor of Fine Arts is a professional degree requiring 110 credits in art, distributed as follows: Drawing 12 cr., Painting and Watercolor 15, Design 6, Ceramics 6, Printmaking 6, Photography 6, Lettering 2, Art History 15, Sculpture 12 and art electives 33 credits. Ninety credits are required outside of the department. All general university requirements except foreign language must be completed. Fourteen quarters are usually required to complete this degree.

A student may apply at the beginning of the Sophomore year or later and must have a 3.0 index in Art and a 2.5 in academic work. A portfolio, slides or an exhibition (or both) must be presented.

Course requirements for a degree in education with a teaching major or minor in art are listed under Education.

Suggested first year program:

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GRADUATE WORK. See Graduate School Bulletin

FOR UNDERGRADUATES

For Explanation see Course Descriptions (Index)


129 CERAMICS 2 R-4. Clay projects, building, throwing, glazing, and firing. Offered for one credit by extension.

160 LAYOUT AND LETTERING 2 R-6.

200 SURVEY OF WESTERN ART: THE ANCIENT WORLD 3.

201 SURVEY OF WESTERN ART: EARLY CHRISTIAN TO MANNEISISM 3 prereq 200.

202 SURVEY OF WESTERN ART: MANNEISISM TO PRESENT 3 prereq 201.

210 STUDIO HUMANITIES 3. Studio experience for non-art majors.

215 PHOTOGRAPHY 3 R-4 prereq 127.

229 INTERMEDIATE CERAMICS 2 prereq 4 credits of 129.

233 (133) PRINTMAKING 2 R-6 prereq 9 credits of 123. Methods and techniques.

235 (135) SCULPTURE 3 R-9 prereq 9 credits of 123.

239 (139) WATERCOLOR 3 R-6 prereq 9 credits of 123. Offered by extension for 1 credit.

240 (140) PAINTING 3 R-9 prereq 9 credits of 123. Su cr/la. Variable credit by extension. Techniques of oils and related media.

FOR GRADUATES

520 PRECEPTORYIAL READINGS V R-9 prereq 152, 153 and 10 upper division credits in anthropology. Readings in the major divisions of anthropology, ethnology, etc.

551 RESEARCH V.


699 THESIS V R-9.
ASTRONOMY

the oldest of the physical sciences, takes as its subject matter the structure of the universe, ranging from the relatively nearby objects of the solar system to the remote galaxies of outer space. Astronomy is developing rapidly due to renewed interest generated by the advent of the Space Age. Many areas of current astronomical research, such as pulsars, were not even known as little as ten years ago.

Requirements for a major in astronomy are arranged to provide the student with a good background in the related fields of mathematics and physics and to include the fundamentals of astronomy and astrophysics. This course of study is intended to prepare the student for either graduate work in astronomy or astronomy-related employment in a research facility or laboratory.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, the student needs algebra and trigonometry. It is also recommended that the high school preparation include advanced algebra and solid geometry.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE. In addition to the general requirements listed earlier in the catalog, astronomy majors are to take the same mathematics and physics courses during their first two years as physics majors. Fifty-five credits in physics and astronomy courses are required for the Bachelor of Arts degree with a major in astronomy, including Astronomy 131-132, 351, 352, 362, 363-364-365, and additional astronomy or science courses of the student's choice (excluding Astronomy 450, Special Problems in Astronomy), and Physics 221-222-223 plus one of the following sequences: Physics 314-315-316, 322-323-324, 371-372-373, 446-447-448, or 453-454-455.

Students intending to go on to graduate study in astronomy are strongly urged to take as many of the following courses as possible: Physics 314-315-316, 322-323-324, 371-372-373, 446-447-448, 453-454-455, and 473; Astronomy 464, 465.

Required courses offered by other departments are: Computer Science 201, Mathematics 106-117, 211-212, 251-252-253. The foreign language requirement listed earlier in the catalog must be satisfied. Required courses in English are Composition 100, 200 and 450 except that students scoring less than the 31st percentile on the English section of the ACT test are required to take English 301 and students receiving 94th percentile or higher are exempt from English 100 and 300.

FOR UNDERGRADUATES

131-132 ELEMENTARY ASTRONOMY 2 (2-2) prereq high school algebra and trigonometry. The solar system, normal and variable stars, star clusters, nebulae, and galaxies.

351-352 SOLAR SYSTEM ASTRONOMY AND ASTROPHYSICS 3 (3-4) prereq Astronomy 131-132, Physics 221-222-223, and additional astronomy or physics courses. The fundamental structures, dynamical and observational properties of the planets, comets, and meteoroids.

360-361 CELESTIAL MECHANICS AND DETERMINATION OF ORBITS 3 (3-0) prereq Astronomy 131-132, Math 251-252-253, Physics 221-222-223 and 301. Celestial mechanics: calculation of the orbits of planets, comets, and asteroids; applications to earth satellites and interplanetary space missions.

362 OBSERVATIONAL ASTRONOMY 3 (3-0) prereq Astronomy 131-132, Physics 221-222-223. Telescopes and instrumentation for the determination of the positions, brightness, colors, and other properties of stars: particular attention to photometric and photometric problems.

360-364-365 STELLAR ASTRONOMY AND ASTROPHYSICS 3 (3-0) prereq Astronomy 131-132, Math 251-252-253, Physics 221-222-223. Stellar evolution: application of physical laws to determine the nature of the stars; analysis of the stellar spectra: structure of stars and their evolution; galactic structure and cosmology. Equations of state, stellar opacities and nuclear reaction rates, structure of main sequence and giant stars, theoretical Hertzsprung-Russell diagrams, age determination of star clusters.

450 SPECIAL PROBLEMS IN ASTRONOMY V 1-5 R-10 prereq 15 credits of astronomy and c/l. Research or directed reading in selected areas of astronomy or astrophysics.


BIOLOGY, BOTANY—17

BIOLOGY

deals with living things. This program provides basic education in the biological sciences. It is intended for students who wish to work in the broad area of biology, rather than in one of the specific fields. Two options are provided in this program; Option A for students interested in concentration in the cellular and physiological aspects of biology and Option B, where environmental biology is emphasized. Both options are designed for those who plan to do further work at the graduate level or in one of the medical sciences. The biology program is also well suited for those who plan to teach biology at the secondary level.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, the student needs chemistry, 2 1/2 years of mathematics. It is also recommended that the high school preparation include a modern foreign language.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN BIOLOGY

Option A (Biology): In addition to the general requirements listed earlier in the catalog, the following special requirements must be completed for a Bachelor of Arts Degree with a major in Biology: 50 or more credits in biology including Botany 111 (Introduction to Biology); Botany 114, 115 (General Botany); Microbiology 200 (General Microbiology); Zoology 112, 113 (General Zoology- Botany 330 (Cellular Physiology); Zoology-Botany 485 (Genetics) and 10 additional credits in 300 and 400 level courses in biological sciences (Recommended: Botany 325, 437; Microbiology 440; Zoology 331). Chemistry 370, 481 also recommended.

The following courses in allied sciences must be completed by students electing option A: Chemistry 201, 202, 203 (College and General Chemistry); Chemistry 261, 262 (Organic Chemistry); Physics 111, 112, 113 (General Physics); or Physics 221, 222, 223 (General Physics); Mathematics 116 (College Algebra); Mathematics 117 (Trigonometry), and Mathematics 118 (Introduction to Calculus).

Option B (Environmental Biology): In addition to the general requirements listed earlier in the catalog, the following special requirements must be completed for a Bachelor of Arts Degree with a major in Biology (Environmental Option): 65 or more credits in Biology including Botany-Zoology 111 (Introduction to Biology); Botany 114, 115 (General Botany); Zoology 112, 113 (General Zoology); Botany-Zoology 230, 231 (Concepts of Ecology); Zoology 410 (Advanced Animal Ecology), or Zoology 426 (Invertebrate Ecology); Botany 355 (Plant Ecology); Zoology-Botany 485 (Genetics), and 10 additional credits in 300 and 400 level courses in biological sciences (Recommended: Zoology 307 (Aquatic Biology); Zoology 465 (Animal Behavior); Zoology 410 (Advanced Animal Ecology), or Zoology 426 (Invertebrate Ecology); Zoology 461 (Limnology); Microbiology 200 (General Microbiology); Botany 265 (Local Flora); Botany 395 (Systematic Botany); Botany 370 (Forest Pathology); Botany 325 (Plant Physiology); Botany 441 (Physiology).

The following courses in allied sciences must be completed by students electing the Environmental Biology option: Chemistry 101, 102, 150 or Chemistry 121, 122, 123; Physics 111 and 112 or 113; Mathematics 116, 117, 118 and 125; Recommendations: Economics 104 and 105 (Economics); Psychology 101 (Physical Geography); Geology 390 (Climatology); Geography 413 (Population and Resource Geography); Computer Science 204 (Fortran); Botany 315 (Human Ecology); Forestry 210 (Forest Soils); Forestry 370 (Wildlife Conservation).

The foreign language requirement listed earlier in the catalog must be satisfied by those in both biology options. English 100 and 300 are also required.

Suggested first year program for Options A and B:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>A</th>
<th>W</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botany-Zoology 111</td>
<td>5</td>
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<tr>
<td>Botany 114-115</td>
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<td>Zoology 112, 113</td>
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<td>Mathematics 116, 117, 118</td>
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<tr>
<td>Chemistry 101, 102, 150 or Chemistry 121, 122, 123</td>
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<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Geology 390 (Climatology)</td>
<td>5</td>
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<tr>
<td>Electives or Group Requirements</td>
<td>0-2</td>
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</tbody>
</table>

15-18 15-18 15-18

BOTANY

is the study of various aspects of plant life, such as form, structure, physiology, reproduction, classification, evolution and distribution. The study of plants provides any educated person with a better understanding of his environment and a greater comprehension of general biological principles. It is a basic science for many professional fields such as forestry, pharmacy, agriculture, horticulture, plant pathology and plant breeding. A degree in botany will also prepare the student to make satisfying use of such leisure time activities as gardening, landscaping and other forms of outdoor recreation.

Employment opportunities for both men and women trained in botany are available in numerous fields. Graduates in botany may find employment as biology teachers in high schools, or in research institutes and government agencies such as the Forest Service and experimental stations, Park Service and plant quarantine, or in industrial establishments such as pharmaceutical, food, drug, paint, seed and oil companies, florists and nurseries. Good students are encouraged to go into graduate work. The better positions in the field require a master's or doctor's degree. For most teaching positions in colleges and universities the doctorate is essential.

Besides offering a Bachelor of Arts degree, the department also offers opportunities for graduate work (see Graduate School) leading to the Master of Arts, Master of Science and the Doctor of Philosophy degrees in the following major areas of botany: Anatomy, Cytoology, Ecology, Morphology, Mycology, Paleobotany, Physiology, Forest Pathology and Taxonomy. More detailed information can be obtained from the chairman of the department.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, the student needs chemistry and 2 1/2 years of mathematics. It is also recommended that the high school preparation include a modern foreign language.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN BOTANY. In addition to the general requirements for graduation listed earlier in the catalog, the following special requirements must be completed for the Bachelor of Arts Degree with a major in Botany: 45 credits in Botany including Botany 101, 111, 115; 2 credits of 485 and at least one course from each of the following groups: (1) Morphology, Botany 441, 442, 443, 444, 445, 446, 447, 448; (2) Physiology, Zoology 325, 330, 421, 423, 427, 428, 433; (3) Ecology, Zoology 325, 355; (4) Anatomy-Cytoology, Botany 433, 435, 487; (5) Taxonomy, Botany 365, 366, 368, 369, 467; and (6) Genetics, Botany 485, 486, 487.

Also required are: Zoology 112, 113; Mathematics 118; English 100, 360; Microbiology 200; Chemistry 160 or 361; Physics 111-112-113 or 211, 222-223; Recommended, Zoology 301, 305, 315 (Human Ecology); Zoology 461; Chemistry 481, 482; and a course in statistics. The foreign language requirement listed in the catalog must be satisfied. French or German preferred.

Courses 265, 355, 365, 370, 411 may require field trips extending some miles from the campus. Students are required to pay their pro rata share of transportation, insurance, etc. costs for such trips.

Suggested first year program:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>A</th>
<th>W</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botany 111, 114, 115</td>
<td>5</td>
<td>5</td>
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</tr>
<tr>
<td>Chemistry 101, 102 or 121, 122, 123</td>
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<tr>
<td>Mathematics 116, 117</td>
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</tr>
<tr>
<td>English 100</td>
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<tr>
<td>Health &amp; PE 100</td>
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</tbody>
</table>

15(16) 15(16) 14

FOR UNDERGRADUATES

For explanation see Course Descriptions (Index)

100 FIELD BOTANY 3 (0-6). The collection, preservation and identification of plants and consideration of where these plants grow, is given only as an extension course. Credit not allowed toward degree in Botany.

111 INTRODUCTION TO BIOLOGY 3 (3-4). The basic principles of biology, including aspects of cell structure and function, population dynamics, origin of life, and mechanics of evolution and adaptation. Credit not allowed for this course and Zoology 111.

114 (113) GENERAL BOTANY 5 (3-4) prereq 111 or =. The morphology, reproduction and evolutionary relationships of the various plant groups.

115 (112) GENERAL BOTANY 5 (3-4) prereq 114 or =. The anatomy, physiology and ecology of higher plants.

170 SURVEY OF WILDLIFE CAREERS 1 (1-0). Also listed as Forestry 170 and Zoology 190.
18—BOTANY

260. BASIC CONCEPTS OF ECOLOGY 3 (3-0) prereq one year of college biology. Ecological principles with emphasis on the ecosystem. (Credit not allowed for this course and Zoology 260.)

251. ELEMENTARY ECOLOGY LABORATORY 2 (0-4) prereq or coreq. Lab techniques: sample collection, identification, distribution, and interrelationships with environmental factors. Field work included. (Credit not allowed for this course and Zoology 251.)

262 (123). LOCAL FLORA 4 (2-4) prereq 114. The identification of flowering plants.

FOR UNDERGRADUATES AND GRADUATES

325. (325). PLANT PHYSIOLOGY 5 (3-4) prereq 115 and Chem 160 or 161. The chemical and physical basis of metabolism, photosynthesis, nutrition, water relationships and growth of plants.

330. CELLULAR PHYSIOLOGY (see Zoology).

334. MICROTECHNIQUE 3 (1-4) prereq 15 cr. in Botany. Techniques of preparing plants and protists, cytological squashes, woody and non-woody cellodoid mounts; maceration of wood; use of freezing, sliding and rotary microtomes.


365. SYSTEMATIC BOTANY 5 (2-8) prereq 115 or 265. Identification, principles of classification, phylogeny, methods of collecting and preserving of vascular plants. (Credit not given for both 265 and 365. Given for 3 cr. at the Biological Station.)

366. AGROECOLOGY 5 (2-4) prereq 265 or 365. Identification, classification, and ecological relationships of grasses, sedges, and rushes. (Given for 3 cr. at the Biological Station.)

368. AQUATIC FLOWERING PLANTS 3 (0-7) prereq 265 or 365. Identification, classification and ecological distribution of the higher aquatic plants.

370. FOREST PATHOLOGY 4 (2-4) prereq 250 or 355, and For 290-291. The agencies of disease and decay of trees and structural timbers.

390. CHEMISTRY OF PLANT CONSTITUENTS (See Chem 390 and For 390).

403. BIOPERLustrATIONS 2 (0-4) prereq 1 year of biology and c/l. Basic principles and skills of producing illustrative material in plant biology. Special supplies fee. Credit not allowed for this course and Zoology 403.

421. MINERAL NUTRITION 5 (3-4) e/y prereq 225. The absorption, translocation and utilization of minerals by plants: mineral requirements of plants; plant tissue analysis and the culture of plants under controlled nutrient regimes.

425 (325). RESPIRATORY METABOLISM IN PLANTS 5 (3-4) o/y prereq 255, Chem 366 and Phy 115 or A. The respiratory mechanism in plants, relationships of respiration to other processes in the plant, photosynthesis, nitrogen metabolism.

427. PLANT VIRUSES 4 (2-4) prereq 115 or A, Micro 360, Plant Anatomy and the diseases which they cause. The isolation, purification, identification, and host ranges of selected plant viruses.

428. ALGAL PHYSIOLOGY 5 (3-4) prereq 323, 441 or c/l. Comparative macro- and ultrastructure, physiology, biochemistry, and ecology of the photosynthetic algae with special emphasis on the algae and their relationships to both the bacteria and higher plants.

429 (329). PROBLEMS IN PLANT PHYSIOLOGY V 1-6 (0-3/6) R-6 prereq 325 and c/l. Individual or group work consisting of research problems, special readings or discussions dealing with aspects of plant physiology not taken up in regular courses.

432 (322). MORPHOGENESIS 5 (4-5) o/y prereq 325 or A. The effect of internal and external factors on the growth and forms of organisms.

434. ADVANCED MICROTECHNIQUE 4 (1-6) prereq 20 cr. in Botany or Biology. Training in techniques such as photomicrography, photography, audio-radiography, in vitro culture, etc.

435 (335). PLANT ANATOMY 5 (2-6) e/y prereq 115 and Chem 160 or A. The finer structures of the plant cell in relation to its functions.

437 (337). CYTOLOGY 5 (3-4) e/y prereq 115 and Chem 160 or A. The structure and function of the plant cell.

438. PHOTOBOTANY 5 (3-4) e/y prereq 115 and Chem 160 or A. The scientific basis of plant physiology with emphasis on the role of light. (Credit not allowed for this course and Zoology 438.)

445 (345). SPERMATOPHYTES 5 (2-6) e/y prereq 115 or A. The morphology and life histories of the gymnosperms and angiosperms.

449 (349). PROBLEMS IN PLANT MORPHOLOGY V 1-6 (0-3/6) R-6 prereq 441, 442, or 445 and 446 and c/l. Individual or group work consisting of research problems, special readings or discussions dealing with aspects of plant morphology not taken up in regular courses.

510. ECOLOGICAL SYSTEMS ANALYSIS 4 (3-2) prereq Mathematics 118, 125, Computer Science 201, Botany 385 or c/l. Mathematical analysis of ecological systems, mathematical models, computer simulation, optimization, and systems analysis.

459 (359). PROBLEMS IN PLANT ECOLOGY V 1-6 (0-3/6) R-6 prereq 250 or 355 and c/l. Individual or group work consisting of research problems, special readings or discussions dealing with aspects of plant ecology not taken up in regular courses.

467. PRINCIPLES OF BOTANICAL NOMENCLATURE 2 (0-2) e/y prereq c/l. Application of the rules of nomenclature to plant classification.

469 (369). PROBLEMS IN PLANT TAXONOMY V 1-6 (0-3/6) R-6 prereq 365 and c/l. Individual or group work consisting of research problems, special readings or discussions dealing with aspects of plant taxonomy not taken up in regular courses.

475 (375). MYCOLOGY 5 (3-4) e/y prereq 115 or A. The morphology, taxonomy and ecology of the fungi, especially of the northern Rocky Mountains (given for 6 cr at the Biological Station).

479 (379). PROBLEMS IN MYCOLOGY AND FOREST PATHOLOGY 5 (2-4) o/y prereq 375 and c/l. Individual or group work consisting of research problems, special readings or discussions dealing with aspects of mycology and plant pathology not taken up in regular courses.

483. PALEOBOTANY 5 (3-4) o/y prereq 115 or A. An introduction to the study of fossil plants.

484. PALYNOLOGY 3 (2-2) e/y prereq senior standing in a natural science and c/l. Fossil and recent pollen and spores—methods of collection, preparation, identification, and the application of palynological data in botanical and non-botanical disciplines.

485 (385). GENETICS. (See Zoology.)

486 (386). EVOLUTION 3 (3-0) prereq 265, 485; Zoology 113. The nature of and processes by which evolution occurs. (Credit not allowed for this course and Zoology 486.)

487. CYTOGENETICS 4 (3-2) prereq 485 or A. The structure and designated chromosome changes from bacteria to higher organisms. Chromosome behavior and changes, their role in development and evolution. (Credit not allowed for this course and Zoology 487.)

489. PROBLEMS IN PALEOBOTANY V 1-6 (0-3 per credit) R-6 prereq 483 and c/l.

490. SEMINAR IN BIOLOGY 1 (2-0) R-4. (Credit not allowed for this course and Zoology 490.)

491-492. SENIOR WILDLIFE SEMINAR (See Forestry)

495. BOTANICAL LITERATURE 1 (0-3-2) prereq 20 credits in botany. Student reports on current botanical literature.

FOR GRADUATES

505. HISTORY AND DEVELOPMENT OF BIOLOGICAL CONCEPTS 3 (3-0) prerequisites, biological science. (Credit not allowed for this course and Zoology 505.)

522. BSCS BIOLOGY 6 prereq Bachelor's degree: major preparation in Biology, at least 2 years' teaching experience in Biology at the secondary level. Basic concepts of biological ecology as applied to the use of American Institute of Biological Sciences, Biological Sciences Curriculum Study (BSCS) Green-Version materials in teaching high school biology. Not to be allowed for a major in Botany.

523. PHOTOBIOLOGY 4 (2-4) prereq 330. The interaction between ionizing radiation and biological systems including photosynthesis, vision, photoperiodism, bioluminescence; methods for studying effects of light on plants, animals, and microorganisms. (Credit not allowed for this course and Zoology 523.)

524. RADIOBIOLOGY 4 (2-4) prereq 330. The influence of ionizing radiation (x-rays gamma rays, and accelerated particles) on biological systems and the use of radio-isotopes in biology. (Credit not allowed for this course and Zoology 524.)

551. GENERAL ECOLOGY 6 (6-15) prereq Bachelor's degree: major preparation in Botany, Biology, or Zoology. Community concepts including successional changes; the ecological relationships; introduction to population problems. Offered at the Biological Station. (Credit not allowed for this course and Zoology 551.)

562-563. TAXONOMY OF VASCULAR PLANTS 5 (3-4) o/y prereq c/l. Classification, distribution and evolutionary relationships of the vascular plants.

564. EXPERIMENTAL TAXONOMY 4 (2-4) e/y prereq 437, 486, 583. Modern concepts in taxonomy with emphasis on cytological, chemical, and other modern approaches to the problems of plant classification.

586 (486). PHYTOGEOGRAPHY 4 (4-0) e/y prereq 355, 486, 582, 586, Geol 101-102 or 110. Vegetation types of the world and their history in North America.
BUSINESS ADMINISTRATION—19

BUSINESS ADMINISTRATION

The School of Business Administration, founded in 1918, is the largest professional school of the University of Montana. It is accredited by the American Association of Collegiate Schools of Business; its curriculum, therefore, is similar to those of other recognized schools of business.

The aim of the School of Business Administration is to provide a broad foundation in the fundamentals of organizational administration and management as well as exposure to the basic principles of the specialized disciplines within the field of business administration. The complexity and scope of our contemporary society have brought about an ever-increasing need for responsible leadership in the business community. A professional business education combined with a solid grounding in the liberal arts and sciences prepares young men and women to meet the challenges of an age of organizational revolution and actively to participate in the molding of the future of that age.

The curriculum of the School of Business Administration provides particular preparation in a variety of fields in addition to the basic courses. The areas of concentration in which the student may specialize are: accounting, finance, business education, marketing, office administration, personnel or production management.

The student may elect to pursue a program of studies leading to the degree of Bachelor of Science in Business Administration or to the degree of Bachelor of Arts in Business Administration. These programs are described below.

Opportunity for further study at the graduate level is offered through two programs leading to the degrees of Master of Business Administration or Master of Science in Business Administration (with concentrations in accounting, business education, computer systems, finance, management, or marketing). The MBA program is particularly suited to those students who hope to advance in their current positions. The advanced graduate curriculum is designed for students in areas other than business administration. Further details may be obtained from the Graduate Studies Bulletin or by specific inquiries directed to: Director of Graduate Studies, School of Business Administration.

PRE-BUSINESS PROGRAM

Upon entering the University as a freshman, a student who desires to major in Business Administration registers as a pre-business administration major. In the first two years of study the student completes courses toward meeting the general university requirements and prerequisite course work for courses to be taken subsequently in the School of Business Administration. Students who plan to major in Accounting are advised to take Business Administration 201, 202, and 203 in their freshman year.

The general university and pre-business administration requirements include: Health, Physical Education and Recreation 100 (3 quarters, 3 credits), English 100 and 300, except that students receiving an "A" or "B" grade in English 100 may substitute for English 300 any literature course other than English 101, requirements from Group I; requirements from Group II including Mathematics 116; requirements from Group III including Economics 201-202-203; requirements from Group IV, Speech Communication 111 or 112; Business Administration 201-202 and 250. Pre-business requirements are prerequisites for all business administration courses numbered 300 and above except that Accounting Majors may take Business Administration 306, 307, and 308 in their sophomore year.

ADMISSION AND GRADE POINT REQUIREMENTS

Admission to the School of Business Administration requires junior standing, completion of the pre-business requirements, and a minimum of a "C" average on all credits attempted. To continue work in the School of Business Administration the student must maintain at least a "C" average in all course work in Business Administration and for course work in the area of concentration selected.

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

To achieve the degree of Bachelor of Science in Business Administration, the student must:

a. Complete the general university and pre-business administration requirements.

b. Complete core courses: Economics 301, Bus Ad 322, 340, 342, 350, 357-358, 360, 370, and 446. Core courses may not be taken for graduate credit by Bus. Ad. majors. Non-business majors may arrange to earn graduate credit for core courses.

c. Select before the beginning of the third quarter of the junior year an area of concentration from the following: Accounting, Business Education, Finance—Option A, B or C, General Business, Management—Option A or Option B, Marketing, Management.

This selection of an area of concentration is to be indicated by completing a prescribed form available in the office of the Dean of School of Business Administration and by filing the completed form in that office.

d. Complete the course work required in the selected area of concentration as indicated by the appropriate curriculum of the area of concentration below.

e. Offer not less than a total of 75 credits in courses in the School of Business Administration. Courses outside the School of Business Administration which may count toward the 75 credit requirement are: all courses offered by the Department of Economics except 101; English 450, History 474.

f. Present not less than 90 credits (exclusive of Health and Physical Education) of work taken in departments and schools other than the School of Business Administration.

g. Offer at least 195 credits including 3 credits in Health and Physical Education.

h. Attain an average grade of "C" on all credits in business administration courses for which a grade is received and on all credits in the area of concentration selected for which a grade is received.

CURRICULA OF THE AREAS OF CONCENTRATION

ACCOUNTING

Students specializing in accounting must complete the following requirements in addition to the basic requirements of the School of Business Administration:

- Bus. Ad. 203—Accounting Principles III
- Bus. Ad. 204—Cost Accounting I and II
- Bus. Ad. 306—Intermediate Accounting I and II
- Bus. Ad. 308—Special Problems in Accounting
- Bus. Ad. 401—Income Tax I and II
- Bus. Ad. 412—Accounting Theory

- It is recommended that students preparing for the public accounting profession take the following additional courses:
  - Bus. Ad. 305—Governmental Accounting
  - Bus. Ad. 359—C.P.A. Law Review
  - Bus. Ad. 403—C.P.A. Review

BUSINESS EDUCATION

In addition to the basic requirements of the School of Business Administration,* students concentrating in Business Education must include the following courses:

- Bus. Ad. 183—Production Typewriting
- Bus. Ad. 184-188—Stenography
- Bus. Ad. 192—Beginning Secretarial Practice
- Bus. Ad. 194—Regional Management
- Bus. Ad. 203—Accounting Principles
- Bus. Ad. 204—Office Machines Practice
- Bus. Ad. 309—Methods of Teaching Typewriting
- Bus. Ad. 351—Methods of Teaching Bookkeeping and Basic Business
- Bus. Ad. 353—Office Management
- Bus. Ad. 389—Methods of Teaching Shorthand and Transcription

* Students concentrating in Business Education must also complete the Business Administration requirements.
20—BUSINESS ADMINISTRATION

*Business Education students are not required to take Speech 111 or 112, Bus Ad 322, 340, 342, 350 or 446.

FINANCE

Three optional areas of concentration are offered in the field of Finance:

Option A. Financial Management

The financial management curriculum is designed to give students an understanding of the financial markets and their relation to banking and investments as well as to acquaint students with the concepts and methods relevant to financial analysis and management.

**Courses:***

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Bus. Ad. 321</td>
<td>Commercial Banking</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 322</td>
<td>Theory of Business Finance</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 320</td>
<td>Principles of Insurance and Risk Management</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 430</td>
<td>Investments</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 423</td>
<td>Problems in Finance</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 429</td>
<td>Analysis of Financial Institutions</td>
<td>3</td>
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<tr>
<td>Econ 311</td>
<td>Intermediate Econ. Analysis</td>
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<tr>
<td>Bus. Ad. 447</td>
<td>Managerial Economics</td>
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</tbody>
</table>

*Students are advised to take Econ 311 before BA 347.

Option B. Insurance

This curriculum provides the student with a basic understanding of risk and uncertainty prerequisites for the risk manager, with special attention to the techniques and the principles of the insurance profession.

**Courses:***

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Bus. Ad. 320</td>
<td>Principles of Insurance and Risk Management</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 330</td>
<td>Life and Health Insurance</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 371</td>
<td>Property and Casualty Insurance</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 324</td>
<td>Real Estate Law</td>
<td>3</td>
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<tr>
<td>Bus. Ad. 355</td>
<td>Management of Financial Institutions</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 401</td>
<td>Income Tax and II</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 428</td>
<td>Social Insurance</td>
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</tbody>
</table>

Option C. Real Estate

The course of instruction offered in the field of Real Estate is intended to equip the student with the necessary training to handle the managerial, financial, and procurement problems incident to land and its usage.

**Courses:***

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Bus. Ad. 324</td>
<td>Real Estate Law</td>
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</tr>
<tr>
<td>Bus. Ad. 424</td>
<td>Money and Capital Markets</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 425</td>
<td>Real Estate Finance</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 426</td>
<td>Property Valuation Theory</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 427</td>
<td>Property Management</td>
<td>3</td>
</tr>
<tr>
<td>Econ 355</td>
<td>Land Economics</td>
<td>3</td>
</tr>
<tr>
<td>Soc 457-458-459</td>
<td>Seminar in Urban Studies (anyone of the three)</td>
<td>2</td>
</tr>
</tbody>
</table>

MANAGEMENT

This curriculum is designed to equip the student with the analytical, integrative, and interpretive skills to enable him to assume a managerial role in a wide variety of production, marketing, finance, and government organizations. In addition to the basic requirements of the School of Business Administration, students concentrating in management must include the following courses:

**Courses:***

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BA 201</td>
<td>Administrative Accounting and one additional course</td>
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<tr>
<td>BA 203</td>
<td>Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BA 362</td>
<td>Analysis of Consumer Behavior</td>
<td>3</td>
</tr>
<tr>
<td>BA 383</td>
<td>Analysis of Marketing Communication</td>
<td>4</td>
</tr>
<tr>
<td>BA 411</td>
<td>Personnel Administration</td>
<td>4</td>
</tr>
<tr>
<td>BA 447</td>
<td>Managerial Economics</td>
<td>4</td>
</tr>
</tbody>
</table>

The student would also select at least 9 hours from one of the following groups, and at least one course from each of the other groups:

**A. Personnel and Industrial Administration***

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 442</td>
<td>Personnel Management</td>
<td>4</td>
</tr>
<tr>
<td>BA 444</td>
<td>Regulation of Industry</td>
<td>4</td>
</tr>
<tr>
<td>Econ 321-322</td>
<td>Labor Economics</td>
<td>6</td>
</tr>
<tr>
<td>Bus. Ad. 434</td>
<td>Industrial Relations</td>
<td>3</td>
</tr>
<tr>
<td>Engl 450</td>
<td>Problems in Composition</td>
<td>3</td>
</tr>
<tr>
<td>Psych 442</td>
<td>Personnel Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Psych 434</td>
<td>Industrial Psychology</td>
<td>3</td>
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</tbody>
</table>

**B. Marketing***

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 362</td>
<td>Analysis of Consumer Behavior</td>
<td>3</td>
</tr>
<tr>
<td>BA 363</td>
<td>Analysis of Marketing Communication</td>
<td>3</td>
</tr>
<tr>
<td>BA 396</td>
<td>Marketing Research</td>
<td>3</td>
</tr>
<tr>
<td>BA 444</td>
<td>Regulation of Industry</td>
<td>3</td>
</tr>
<tr>
<td>BA 440-461</td>
<td>Marketing Management</td>
<td>6</td>
</tr>
<tr>
<td>Engl 450</td>
<td>Problems in Composition</td>
<td>3</td>
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</tbody>
</table>

**C. Computer Systems***

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BA 371</td>
<td>Introduction to Cobol Programming</td>
<td>2-3</td>
</tr>
<tr>
<td>CS 314</td>
<td>Cobol</td>
<td>4</td>
</tr>
<tr>
<td>CS 470</td>
<td>Analysis and Design of Business Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 479</td>
<td>Computer Simulation of Business Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 301</td>
<td>Programming</td>
<td>3</td>
</tr>
<tr>
<td>CS 374</td>
<td>Application of Digital Computers</td>
<td>4</td>
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</table>

OFFICE ADMINISTRATION

In addition to the basic requirements of the School of Business Administration,* students concentrating in Office Administration must include the following courses:

**Courses:***

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 183</td>
<td>Production Typewriting</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 184-185-186</td>
<td>Stenography</td>
<td>15</td>
</tr>
<tr>
<td>Bus. Ad. 197-198</td>
<td>Production Stenography</td>
<td>10</td>
</tr>
<tr>
<td>Bus. Ad. 190-191</td>
<td>Advanced Shorthand Transcription</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 192</td>
<td>Beginning Transcription</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 194</td>
<td>Records Management</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 302</td>
<td>Elementary Accounting</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 329</td>
<td>Office Machines Practice</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 333</td>
<td>Advanced Secretarial Practice</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 450</td>
<td>Problems in Composition</td>
<td>3</td>
</tr>
</tbody>
</table>

*Office Administration students are not required to take Speech Communication 111 or 115, Bus. Ad. 382, 340, 342, 330 or 446.

BACHELOR OF ARTS IN BUSINESS ADMINISTRATION

The requirements for the degree of Bachelor of Arts in Business Administration are identical to those for the degree of Bachelor of Science in Business Administration except that, in addition, the candidate must satisfy the general university foreign language requirement.

ACCOUNTING

FOR UNDERGRADUATES

*For explanation see Course Descriptions (Index)*

201 ACCOUNTING PRINCIPLES I 3.

202 ACCOUNTING PRINCIPLES II 3 prereq 201.


FOR UNDERGRADUATES AND GRADUATES

Bus. Ad. 201, 303, 306, and 401 are available for graduate credit to non-accounting majors only.

301 ADMINISTRATIVE ACCOUNTING 4 prereq 202. Open only to non-accounting majors. Emphasis on usefulness of accounting information for management. (Credit not allowed for both Bus Ad 301 and 303-304.)

302 COST ACCOUNTING I 3 prereq 203. Development and application of cost systems. Analysis of cost behavior and use of cost information by management. (Credit not allowed for both Bus Ad 301 and 303-304.)

304 COST ACCOUNTING II 3 prereq 303. Continuation of 303. (Credit not allowed for both Bus Ad 301 and 303-304.)

305 GOVERNMENTAL ACCOUNTING 2 prereq 203. Accounting principles and problems as applied to governmental units and nonprofit institutions.

306 INTERMEDIATE ACCOUNTING I 4 prereq 203. The fundamentals of valuations as applied to the balance sheet, and income determination as related to the operating statement.

307 INTERMEDIATE ACCOUNTING II 4 prereq 306.

308 SPECIAL PROBLEMS IN ACCOUNTING 3 prereq 307.

401 INCOME TAX I 3 prereq 202. The application of the federal income tax law as applied to individuals.

402 INCOME TAX II 3 prereq 401. Continuation of 401 applied to corporate and partnership tax problems. Special problems of federal estate and gift taxes.

403 AUDITING I 3 prereq 307. Scope and professional responsibilities of the independent public accountant as related to the examination of financial statements.

404 AUDITING II 3 prereq 403.

410 CONSOLIDATED STATEMENTS 3 prereq 307.

412 ACCOUNTING THEORY 3 prereq 307. A critical analysis of the concepts underlying the development and application of generally accepted accounting principles.

417 ACCOUNTING INTERNSHIP 3 prereq c/l. Students are placed with public accounting firms to receive training during the winter quarter. Written reports are required.

418 C.P.A. REVIEW 5 prereq 304, 308, 404, 410, 412 and c/l. Comprehensive review of accounting theory, practice, and auditing. Primarily for students preparing to take the uniform CPA examination.

499 SEMINAR V R-4.
22-BUSINESS ADMINISTRATION

446 ADMINISTRATION AND BUSINESS POLICIES 4 prereq 340, 360, and Econ 301. (May be taken in one of last two quarters before graduation.) Top-management oriented to develop an integrated view of the organization's functions. Practice and analytical skills involved in problem solving and in coordination.

447 MANAGERIAL ECONOMICS 4 prereq 340. The application of economic analysis to the operation of a business. Demand and cost analysis, competition, competitive pricing, and multi-line production and marketing problems.

449 MANAGEMENT SEMINAR V R-6. Selected projects for developing analytical tools used in general management in the decision-making process.

450 QUANTITATIVE PROBLEMS ANALYSIS V R-4 prereq 350 or = or c/1. Practice in the application of selected quantitative techniques to business problems. Topics and projects selected in consultation with the instructor.

470 ANALYSIS AND DESIGN OF BUSINESS SYSTEMS 2 prereq 350, 370, and CS 301 or =. Techniques for the analysis and design of business data processing and information systems utilizing the computer. Flow-charts, data flow charts, functional flow charts, tables, data matrices, theoretical and practical problems encountered in defining business systems and judging the feasibility of computer processing.

475 COMPUTER SIMULATION OF BUSINESS SYSTEMS 3 prereq 350 or = and CS 301 or =. Modeling business information and control systems for simulation on electronic computers. Application to inventory control, planning, forecasting and budgeting.

499 SEMINAR V R-4.

540 INDUSTRIAL HUMAN RELATIONS 4. Analysis of management of people in the firm and relations of consumer to the firm through use of behavioral models drawn from contemporary psychology and social psychology.

543 RESEARCH METHODS 3. Sources of data, governmental and non-governmental; quality of data, problems of use and interpretation problem formulation, research organization and planning; case studies and evaluation of selected research reports.

544 MANAGEMENT OF ENTERPRISE 3. Management as an art and science. Descriptive and analytical explanations of management practices and processes emphasize functions of planning, organizing, staffing, controlling, directing, measuring, appraising, coordinating, communicating, decision making, and determining objectives, policies, and programs. Application of experimentation and analysis to management information, planning information for decision making, and incorporating current interdisciplinary research techniques in understanding human behavior.

550 STATISTICAL METHODS 4 prereq Math 116 or =. The origin, processing, use and interpretation of accounting and statistical data by business firms; problems and methods of analysis associated with the quantitative approach to decision making in business; specific topics covered include elements of probability, simple regression analysis, sampling time series, index numbers, graphical presentation and modern data processing.

557 LEGAL ENVIRONMENT 3. Includes classification of the law, the judicial process, the attorney-client relationship, available resources, the implementation of government administrative regulation, and regulatory legislation.

561 BUSINESS HISTORY 3. Literature from the colonial period to present, emphasizing methodology and techniques of economic interpretation in business history. (Credit not allowed for both Bus Ad 561 and Hist 561.)

599 RESEARCH V R-6. Special research problems.

646 ADVANCED MANAGEMENT PROBLEMS 3. Interdisciplinary approach to the analysis of problems encountered by senior business managers: determination of objectives; development of policies to achieve objectives; organization of executive personnel to implement policies; coordination of the organization; appraisal and adjustments of the organization to changes in environment.

647 MANAGERIAL ECONOMICS 3. The use of various analytical tools in the decision-making process of business managers: discussion of selected problem-solving techniques (e.g., mathematical programming, decision theory, statistical methods) with application to dynamic real world situations.

650 QUANTITATIVE ANALYSIS 4. Application of subjective probability and modern utility theory to business problems arising out of uncertainty of business expectations. Application of selected techniques such as mathematical programming, queuing theory, game theory, simulation and others.

650 BUSINESS AND ITS ENVIRONMENT 3. Institutional and cultural factors, both political and social, which influence industrial leaders in their enterprise and community relations roles. The economic significance of the internationalization of business, population growth, economic-geographic influences, and technological development. Analysis of education's relationship to scientific progress and the impact of technological development, innovation and the socio-managerial implications of automation.

665 INTERNATIONAL ASPECTS OF BUSINESS 3. Trends and contemporary problems in international operations management, business relations and services, economic policies, and related subjects. The significance and effect on foreign operations of different institutions and political, social, and economic conditions.

690-692 GRADUATE SEMINAR 3. Enter any quarter. Selected topics. May be conducted as a formal seminar, or may consist of individual programs of study in the field under the guidance of the instructor.

697 PROFESSIONAL PAPER V R-5. A professional paper written in the area of the student's major interest based on either primary or secondary research. Subject matter must be approved by graduate advisor.

699 THESIS V R-9.

MARKETING

FOR UNDERGRADUATES AND GRADUATES

300 MARKETING 3. prereq all pre-business requirements. Principles of marketing, channels of distribution, merchandising, marketing institutions, marketing functions, pricing, government regulation.

301 INDUSTRIAL MARKETING 4 prereq 360. Economic factors affecting marketing policy are analyzed. Deals with buying practices, channels, decision making, industrial distributors, price, markets, and research policies.

302 ANALYSIS OF CONSUMER BEHAVIOR 3 prereq 360. Selected conceptualizations in Social Psychology are studied. Application to current business is emphasized through controlled observation and analysis by students.

303 ANALYSIS OF MARKETING COMMUNICATION 3 prereq 360. The broad area of marketing communications is analyzed. Deals with mass media communication and personal communication as they relate to the total marketing process.

306 (466) MARKETING RESEARCH 3 prereq 360. Research techniques and methods including statistical analysis, quantitative experimentation, and simulation. Survey of current research practices in marketing and participation in class field project.

308 INTERNATIONAL MARKETING 4 prereq 360 (prereq waived for majors requiring Political Science). Theories, principles and methods of international trade.

460 MARKETING MANAGEMENT I 3 prereq 362, 363. Planning, coordination, and control functions in marketing management.

461 MARKETING MANAGEMENT II 3 prereq 362, 363. Individual and class analysis of case studies in marketing management.

462 PRICING POLICIES AND PRACTICES 4 prereq 360. The roles of pricing strategy and competition in marketing decision making. Administrative marketing problems related to elasticity of demand, recognition of markets, and research policies. Marketing policies and strategies as they relate to competition.

468 MARKET ANALYSIS AND PLANNING 3 prereq 466. Utilization of statistical and accounting techniques in analyzing past and planning future marketing performance.

499 SEMINAR V R-4.

FOR GRADUATES

502 MARKETING MANAGEMENT 3. The business activities involved in the marketing of goods and services; the techniques, problems and policies of marketing management. Marketing institutions, functions, costs, and control systems. Students are apprised with special emphasis on the decision-making processes.

583 COMMUNICATION PRACTICES 2. Spoken communication in the organizational setting; theories, principles and techniques of business communication and small-group interaction, with emphasis on the latter area.

599 RESEARCH V R-6. Special research problems.

690-692 GRADUATE SEMINAR 3. Enter any quarter. Selected topics. May be conducted as a formal seminar, or may consist of individual programs of study in the field under the guidance of the instructor.

697 PROFESSIONAL PAPER V R-5. A professional paper written in the area of the student's major interest based on either primary or secondary research. Subject matter must be approved by graduate advisor.

699 THESIS V R-9.

BUSINESS EDUCATION AND OFFICE ADMINISTRATION

Not more than 19 credits earned in Business Administration 180-181-182, 183, 184-185-186, 187-188-189, and 190-191 may be applied toward graduation by students not majoring in Business Administration or earning a teaching major or minor in Business Administration. To register for any course in stenography or secretarial practice or earning a teaching major or minor in Business Administration or its equivalent, or be concurrently enrolled as a business administration major or minor in Business Administration and Office Administration. To register for any course in stenography or secretarial practice or earning a teaching major or minor in Business Administration or its equivalent, or be concurrently enrolled as a business administration major or minor in Business Administration.

FOR UNDERGRADUATES

180 BEGINNING TYPWRITING 2 Development of basic skills. With 2 H.S. entrance units, no credit.

181 INTERMEDIATE TYPWRITING 2 prereq 180 or equivalent. Development of basic skills. With 2 H.S. entrance units, no credit.

182 ADVANCED TYPWRITING 2 prereq 181 or equivalent. Development of basic skills and job application.
193 PRODUCTION TYPWRITING 2 prereq 182 or placement. Application of basic skills to production jobs.

194 BEGINNING STENOGRAPHY 5. Theory development. With 1 H.S. entrance unit, no credit.

195 INTERMEDIATE STENOGRAPHY 5 prereq 184 or equivalent. Theory development and dictation. With H.S. units, no credit.

196 ADVANCED STENOGRAPHY 5 prereq 185 or equivalent. Dictation and Transcribing.


190-191 ADVANCED SHORTHAND TRANSCRIPTION 1 prereq 186 or placement. Concurrent enrollment in 187-188 required.

192 SECRETARYING PRACTICE 2 prereq 182. Duplicating, dictating and transcribing machines.

194 RECORDS MANAGEMENT 3 prereq 183 and c/i. Standards and procedures of filing; indexing, storing and retrieving records, purchasing and utilization of equipment, organization and administration of a records management program.

292 OFFICE MACHINES PRACTICE 2. Applications of calculating and adding machines to business practices.

FOR UNDERGRADUATES AND GRADUATES

380 METHODS OF TEACHING TYPWRITING 2 prereq 183 or teaching experience in business subjects. Required of teaching majors and minors in Business Administration.

381 METHODS OF TEACHING BOOKKEEPING AND BASIC BUSINESS 2 prereq 201 or teaching experience in business subjects. Required of teaching majors and minors in Business Administration.

382 ADVANCED SECRETARYING PRACTICE 5 a/y prereq 183, 187, 190, 193, 194, 392; Eng 450; or c/i. Practical application to typical secretarying activities. Required for office administration majors.


384 METHODS OF TEACHING SHORTHAND AND TRANSCRIPTION 2 prereq 186 or teaching experience in business subjects. Required of teaching majors and minors in Business Administration.

385 PHILOSOPHY OF VOCATIONAL BUSINESS EDUCATION 3. Major issues and forces affecting the development of vocational and technical business education and related to organization, operation and evaluation of vocational and technical business education programs; historical development of vocational education; and the relationships of vocational education to practical arts and general education.

386 PRACTICES IN VOCATIONAL BUSINESS EDUCATION 3. Teaching techniques for various units of instruction; the development of materials for class use, development of units of study, the organization of student clubs, equipment, and curriculum.

387 COOPERATIVE VOCATIONAL BUSINESS EDUCATION PROGRAM. The organization of vocational education programs in the high school and post-secondary levels. Determining program needs, curriculum development, coordination techniques, and evaluation.

499 SEMINAR V R-4.

FOR GRADUATES

580 IMPROVEMENT OF INSTRUCTION IN OFFICE MACHINES PRACTICE 3 prereq 183 or business teaching experience and c/i. Lecture, methods, and rotation-plan techniques in teaching newest office machines.

581 IMPROVEMENT OF INSTRUCTION IN SECRETARYING PRACTICE 2 prereq 183 or business teaching experience and c/i. Lecture, methods, and rotation-plan techniques in teaching secretarial machines. Duplication processes in producing the high school newspaper.

582 PROBLEMS IN TEACHING BOOKKEEPING 3 prereq 201 or bookkeeping teaching experience and c/i. Developing a course of study using the latest methods and materials.

583 PROBLEMS IN TEACHING SHORTHAND AND TRANSCRIPTION 3 prereq 185 or shorthand teaching experience and c/i. Developing a course of study using the latest methods and materials.

584 PROBLEMS IN TEACHING TYPWRITING 2 prereq 183 or typewriting teaching experience and c/i. Developing a course of study using the latest methods and materials.

585 UNIT COURSES IN BUSINESS EDUCATION V R-10 prereq major or minor in Business Ad. or business teaching experience and c/i. Several units may be taken in one or more semesters. Each unit will carry a specific designation of topic covered.

599 RESEARCH V R-6. Special research problems.

697 PROFESSIONAL PAPER V R-3. Based on primary or secondary research. Subject matter in the area of the student's major interest must be approved by graduate adviser.

699 THESIS V R-9.
Chemistry

**Senior Year**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Chem. 377</td>
</tr>
<tr>
<td>German 211, 212</td>
</tr>
<tr>
<td>Chem. 446</td>
</tr>
<tr>
<td>Chem. 452</td>
</tr>
<tr>
<td>Chem. 482</td>
</tr>
<tr>
<td>Chem. 474</td>
</tr>
<tr>
<td>Electives (must include 6 cr. of Advanced Chem.)</td>
</tr>
<tr>
<td>5-5</td>
</tr>
<tr>
<td>9-11</td>
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<tr>
<td>13-15</td>
</tr>
</tbody>
</table>

(Recommended electives other than Group I (3 cr., III and IV requirements and other Chemistry include further Mathematics, Physics, advanced Geology and French or Russian.)

**CHEMISTRY CURRICULUM FOR THE B.A. DEGREE**

**(PRE-MEDICAL OPTION)**

**Freshman Year**

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<tr>
<td>Chem. 121-122-123</td>
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<tr>
<td>Math. 121, 121, 155</td>
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<tr>
<td>English 100</td>
</tr>
<tr>
<td>Phys. Ed.</td>
</tr>
<tr>
<td>3-4</td>
</tr>
<tr>
<td>4-6</td>
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<tr>
<td>4-6</td>
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</table>

(Beginning Math course actually dependent on placement test.)

**Sophomore Year**

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Chem. 261-262-263 (or 265-266-267)</td>
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<tr>
<td>Zool. 111-112, 204</td>
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<tr>
<td>Chem. 243</td>
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<tr>
<td>Psychology 110</td>
</tr>
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<td>5</td>
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</tbody>
</table>

**Junior Year**

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Physics 221-222-223</td>
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<tr>
<td>For. Lang. 101, 102, 103</td>
</tr>
<tr>
<td>Zoö. 494</td>
</tr>
<tr>
<td>Electives (to include Eng. 300)</td>
</tr>
<tr>
<td>5-8</td>
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<td>15-17</td>
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**Senior Year**

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>For. Lang. 211, 212</td>
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<tr>
<td>Chem. 446</td>
</tr>
<tr>
<td>Chem. 481, 482</td>
</tr>
<tr>
<td>Electives (e.g., Zool. 485)</td>
</tr>
<tr>
<td>4-6</td>
</tr>
<tr>
<td>15-17</td>
</tr>
</tbody>
</table>

GRADUATE WORK. See Graduate School Bulletin. For details on our four summer programs leading to the Master of Science for Teachers, write to the chairman of the chemistry department.

**FOR UNDERGRADUATES**

For explanation see Course Descriptions (Index)

101-102 GENERAL CHEMISTRY 4 (5-2). The basic laws, properties, reactions of elements and compounds. For students desiring a one year general course only.

121-122-123 COLLEGE CHEMISTRY 5 (5-4). For science majors and those students wishing more than one year of chemistry. The principles and theories of chemistry, properties and relations of elements and inorganic compounds, including qualitative analysis. Students who have completed Chem. 101-102 may not receive credit for 121 and/or 123.

160 SURVEY OF ORGANIC CHEMISTRY 5 (5-4). Normally to follow Chemistry 101-102 as the 3rd quarter of chemistry for students in chemistry or in teaching of chemistry. Chemistry 160 is also open for credit to students who have completed Chemistry 123 or 123 or an equivalent two quarters of a full year course in general or college chemistry.

245 QUANTITATIVE ANALYSIS 5 (3-6) prereq 123. Gravimetric, volumetric, colorimetric and electrometric methods of analysis; theory of error as applied to chemical analysis; introduction to analytical separation.

261-262-263 ORGANIC CHEMISTRY 5 (4-4) prereq 102 or 122. Credit not allowed for both Chem 160 and 261.

265-266-267 ORGANIC CHEMISTRY 5 (4-5) prereq 123. Designed for chemistry majors.

**FOR UNDERGRADUATES AND GRADUATES**

320 METHODS OF TEACHING HIGH SCHOOL CHEMISTRY 3 (2-4) and 261 or 263. Designed to familiarize prospective high school chemistry teachers with texts, demonstrations and laboratory experiments used in newer approaches to teaching of high school chemistry (CBA and CHEMS). Credit not allowed toward bachelor's degree in chemistry.

370 SURVEY OF PHYSICAL CHEMISTRY 5 (5-4) prereq 102 or 122, and 15 credits of college physics. Those portions of physical chemistry which are of special interest to prospective students of medicine.


375-376-377 PHYSICAL CHEMISTRY LABORATORY 1 (0-4) prereq 249, and 372-375, 474 or concurrent enrollment.

381-384 PHYSIOLOGICAL CHEMISTRY 3 (3-0) prereq 160, 262 or 266. Chemistry and metabolism of proteins, lipids and carbohydrates; inspiration; colloids.

385 CLINICAL CHEMISTRY LABORATORY 2 (1-3) prereq or coreq 261 or 482. Analysis of biological fluids and tissues. Factors involved in the evaluation of the clinical status of the patient. Recommended for students in pharmacy, medical technology and dietetics.

390 (361) CHEMISTRY OF PLANT CONSTITUENTS V 3 or 4 (3-0 or 4) prereq 160 or . Chemistry and analysis of plant compounds, including carbohydrates, polyphenols, lignin, and extractives. (Same as Bot 390 and For. 390).

391 (362) CHEMISTRY OF WOOD PRODUCTS 3 (3-0) prereq. 261. The chemistry of pulp, paper, cellulose derivatives, naval stores, industrial polymers, flame retardants, modified woods, and other wood products. (Same as For. 391).

431-432-433 SEMINAR 1 (0-2) R-6 prereq 263 or 267, and a reading knowledge of German. Presentation and discussion of current literature of chemistry. Use of the library.

446 INSTRUMENTAL ANALYSIS 5 (3-6) prereq 245, 371 and 375.

448 ADVANCED INSTRUMENTAL METHODS AND PHYSICAL MEASUREMENTS 2 (0-6) prereq 371, 372 and 446.

452 PHYSICAL INORGANIC CHEMISTRY 3 (3-0) prereq 123, 263 or 267, 371 or 370.

453 CHEMISTRY OF THE REPRESENTATIVE ELEMENTS 3 (3-0) prereq 452.

459 INORGANIC CHEMISTRY LABORATORY 2 (0-6) prereq 123, 263 or 267 and c/i.

461 CARBOHYDRATES 3 (3-0) prereq 263 or 267, 371. Structure, reactions, derivatives and biological aspects of carbohydrate compounds.

463-464 THEORETICAL ORGANIC CHEMISTRY 3 (4-0) prereq 263.

465 ORGANIC QUALITATIVE ANALYSIS V 3 or 4 (2-4 to 8) prereq 263 or 267. Systematic methods of identification of pure organic compounds and mixtures; general class reactions of organic chemistry.

474 INTRODUCTION TO MOLECULAR STRUCTURE 3 (3-0) prereq Math 252 or 253 and Physics 222. Quantum mechanical description of atoms and molecules. Statistical mechanics.

478 RADIACHEMISTRY 3 (2-4) prereq 102 or 122. The principles of nuclear reactions, interactions of high energy photons and particles with matter and the instruments used in observing them; the chemical effects of radiation and the application of nuclear reactions to chemical problems.

481-482 ELEMENTARY BIOCHEMISTRY 3 (3-0) prereq 262 or 266. Primarily for science majors.

483-486 BIOCHEMISTRY LABORATORY 2 (1-3) prereq or coreq 481-482. Primarily for science majors planning to do laboratory research.

490 PROBLEMS AND RESEARCH V R-10 prereq c/i.

**FOR GRADUATES**

528 CHEMICAL PRINCIPLES 5 (5-4) prereq a previous course in general chemistry or high school teaching experience in chemistry and mechanics and macromolecular organization of enzyme systems. Credit not allowed toward bachelor's degree in chemistry. An introduction to the theoretical basis of chemistry, including atomic and molecular structure, bonding, reaction rates and equilibrium.

539 ALUMINUM SEMINAR 1 (0-2) R-4 prereq a previous course in chemistry or high school teaching experience in chemistry. Designed for the M.S. in Teaching of Chemistry program. Discussion of problems facing high school chemistry teachers. Current advances in chemistry or in teaching of chemistry.

549 ANALYTICAL CHEMISTRY 5 (4-6) prereq 528 or equivalent. Designed for the M.S. in Teaching of Chemistry program. Credit not allowed toward bachelor's degree in chemistry. Chemical equilibrium and its applications in qualitative, quantitative and instrumental methods.

538 STRUCTURAL ORGANIC CHEMISTRY 5 (5-4) prereq 528 or equivalent. Designed for the M.S. in Teaching of Chemistry program. Credit not allowed toward bachelor's degree in chemistry. Electronic structures and bonding. Functional groups and reaction mechanisms. Laboratory includes some organic qualitative analysis.

530 MOLECULAR BIOLOGY SEMINAR 1 R (1-0) prereq graduate standing. Molecular Biology and biochemistry. (Cross-listed with Bot 505, Micro 580 and Zoö 580.)

531 PROTEINS AND NUCLEIC ACIDS 3 (3-0) prereq 370 or 373 and 482. Techniques of physical chemistry applied to the investigation of macromolecules. Molecular structure and physical characteristics of proteins and nucleic acids.

532 ENZYMES 3 (3-0) prereq 370 or 373 and 482. The kinetics, reaction mechanisms and macromolecular organization of enzyme systems. Description of known structure-function relationships.
583 METABOLIC REGULATION 3 (3-0) prereq 482. Control and regulatory mechanisms of metabolism with particular emphasis on factors that modulate the activity of enzymes, such as feedback inhibition and genetic expression. Interplay and control of metabolic pathways.

630 SEMINAR 1 R.
650 INORGANIC CHEMISTRY SEMINAR 1 R (1-0) prereq graduate standing in Chemistry.
651 SPECIAL TOPICS IN INORGANIC CHEMISTRY 3 (3-0) prereq 373 and 482. Topic specified in class schedule.
654 CHEMISTRY OF THE TRANSITION ELEMENTS 3 (3-0) prereq 452.
655-656 PHYSICAL INORGANIC CHEMISTRY 3 (3-0) prereq 482.
660 ORGANIC CHEMISTRY SEMINAR 1 R (1-0) prereq graduate standing in Chemistry.
661 ADVANCED ORGANIC CHEMISTRY 3 (3-0) prereq 263 or 267.
662-663 MECHANISMS AND STRUCTURE 3 (3-0) prereq 661.
664-665 PHYSICAL ORGANIC CHEMISTRY 3 (3-0) prereq 373, and 464 or 662.
666 STEROCHEMISTRY 3 (3-0) prereq 663.
668 SPECIAL TOPICS IN ORGANIC CHEMISTRY 3 (3-0) R prereq 661. Topic specified in class schedule.
670 PHYSICAL CHEMISTRY SEMINAR 1 R (1-0) prereq graduate standing in Chemistry.
671 KINETICS 3 (3-0) prereq 373.
672 QUANTUM CHEMISTRY I 3 (3-0) prereq 373.
673 THERMODYNAMICS 3 (3-0) prereq 373.
674 QUANTUM CHEMISTRY II 3 (3-0) prereq 672.
675 STATISTICAL THERMODYNAMICS 3 (3-0) prereq c/i.
676 MOLECULAR STRUCTURE 3 (3-0) prereq c/i.
686-687 ADVANCED MOLECULAR BIOLOGY LABORATORY V 1-3 (0-8 to 9) prereq c/i. Modern research techniques employed in the life sciences. (Cross-listed with Bot, Mich, Pharm, Zool.)
690 RESEARCH V.
699 THESIS V R-18.

212 COBOL PROGRAMMING AND DATA PROCESSING 2 prereq Math 301, CS 101 or concurrent registration or c/i. Primarily for students in business. Computer programs will be developed using the COBOL language. (Credit not allowed for both Math 212 and BA 371.)

220 INTRODUCTION TO DISCRETE STRUCTURES 3 prereq 201. The algebra of sets and algebraic structures including semigroups and groups as well as the theory of graphs. Applications of these structures to computer science.

271-272-273 COMPUTING AND MATHEMATICS 3 (3-4) prereq Math 201 and c/i. (A digital computer is used.) (271) Linear equations and inequalities, linear programming. (272) Intuitive calculus. (273) Logic and probability theory. (Credit not allowed for this course and Math 271-272-273.)

299 SEMINAR V R-6 c/i.

FOR UNDERGRADUATES AND GRADUATES

301-302-303 INTERMEDIATE PROGRAMMING 3 (2-2) prereq Math 116, 117 and CS 201 or c/i. Structure and use of a formal procedure language, algorithms for the solution of logical and numerical problems. Computer structure, the logic of computer arithmetic and the machine representation of information. Machine and assembly languages.

312 SYSTEMS ANALYSIS 3 prereq CS 212 and Math 125. Principles of systems analysis and methods of implementing the techniques of systems analysis on a computer. Forms design and information flow.

320 SWITCHING THEORY 3 prereq CS 220 or c/i. Review of Boolean algebra, switching algebra, gate network analysis and synthesis, combinatorial circuit minimization, elementary number systems and codes.

370 COMPUTER METHODS 4 (3-4) prereq Math 223 or c/i. Computer programming and elementary numerical methods. Problems of interest to secondary school teachers. (Intended primarily for those enrolled in NSF Summer Institute. Others may enroll by special permission. Credit not allowed for this course and Math 270.)

374 APPLICATION OF DIGITAL COMPUTERS V R-4 prereq Math 116, CS 201 and c/i. Formulation and programming of problems occurring in the physical sciences, life sciences and social sciences. Definite projects will be completed by the students. (Intended only for non-mathematics majors.)

401-402-403 ADVANCED PROGRAMMING 3 (3-4) prereq CS 303. Formal languages, language parsing, translation techniques, and compiler construction. Function and design of operating systems. List processing.

452 COMPUTER APPLICATION IN EDUCATION V R-6 c/i. The applications of computers in education, e.g., computer assisted instruction, computer assisted learning, the construction of computer programs for learning.

453 COMPUTER APPLICATIONS IN THE HUMANITIES V R-6 c/i. The applications of digital computers in Art, History, Political Science, Music, etc.

471-472-473 NUMERICAL ANALYSIS 4 (3-4) prereq Math 223 and CS 201 or equivalent. Error analysis, approximation and interpolation, numerical solution of linear and nonlinear equations, numerical solution of ordinary and partial differential equations, numerical solution of integral equations and selected topics. Assigned work on digital computer. (Credit not allowed for this course and Math 471-472-473.)

475 COMPUTER SIMULATION OF BUSINESS SYSTEMS 3 prereq BA 200 or equivalent and CS 201 or equivalent. Modeling business information and control systems for simulation on electronic computers. Applications in inventory control, planning, forecasting and budgeting. (Credit not allowed for this course and BA 475.)

476-477-478 COMPUTER METHODS OF SOLUTION OF LINEAR SYSTEMS 3 (2-2) prereq Math 253 and CS 201 and c/i. Necessary material from linear algebra and matrix theory. Error analysis of algorithms currently used in the solution of linear simultaneous equations and in obtaining eigenvalues. Each student will complete at least one computer program. Applications to linear programming.

499 SEMINAR V R-6 Guidance in special work.

FOR GRADUATES

554 ARTIFICIAL INTELLIGENCE V R-4 prereq CS 473 or Math 472. Theorems proving by computers, heuristics and algorithms and their implementation by computers.
DENTAL HYGIENE

The Department of Dental Hygiene offers a curriculum leading to the degree of Bachelor of Science in Dental Hygiene. The curriculum consists of two years of pre-dental hygiene courses and two years of professional work. Pre-dental hygiene courses give the student a background in biological and physical sciences in preparation for the professional training.

Under direction of the dentist and within the limits of the dental practice act under which the dental hygienist is licensed, this auxiliary provides clinical, educational, and community services in dental offices, public health, schools, hospitals, industry, research, and the Armed Forces. Clinical duties of the dental hygienist include removing stains and deposits from the teeth, applying preventive agents to oral structures, exposing and processing dental x-rays, obtaining and preparing diagnostic information for interpretation by the dentist, and assisting the dentist at the chair.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN DENTAL HYGIENE** In addition to the general requirements for graduation listed earlier in the catalog (except the foreign language requirement), the following courses are required for the Bachelor of Science degree in Dental Hygiene: English 100; Mathematics 116, 125; Chemistry 101, 102, 180; Health, Physical Education and Recreation 199, 290; Microbiology 100-101 or 200, 206; Home Economics 146 or 246, 266; Psychology 110, 230; Speech Communication 111; Pharmacy 110; Dental Hygiene 290, 301, 302, 304, 308, 309, 310, 311, 312, 400, 401, 402, 403, 404, 410, 411, 412.

The Dental Hygiene Aptitude Test must be taken during the spring quarter, Sophomore year. The National Board Dental Hygiene Test must be taken during the spring quarter, Senior year.

A total of 195 credits including 3 credits of required Health, Physical Education and Recreation 100 course is required.

The Dental Hygiene licensure examination will be given once each year by the Montana State Board of Dental Examiners.

**DENTAL HYGIENE CURRICULUM FOR THE B.S. DEGREE**

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Autumn</th>
<th>Winter</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Division Composition (Engl 100)</td>
<td>3</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>College Algebra (Math 119)</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Elementary Statistics (Math 125)</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Introduction to Biology (Zool 111)</td>
<td>5</td>
<td>5</td>
<td>5</td>
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<tr>
<td>General Zoology (Zool 113)</td>
<td>3</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Health, Physical Education and Recreation (HPER 100)</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Group Requirements</td>
<td>3</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>17</td>
<td>15</td>
<td>18</td>
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<table>
<thead>
<tr>
<th>Sophomore Year</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Physiology (Zool 202)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Chemistry (Chem 101-102)</td>
<td>4</td>
<td>5</td>
<td>5</td>
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<tr>
<td>Survey of Clinical Chemistry (Chem 180)</td>
<td>5</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Elementary Microbiology (Micro 100-101)</td>
<td>5</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Human Anatomy (HPER 290)</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Elementary Medical Microbiology (Micro 102)</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>First Aid (HPER 199)</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Nutrition (Home Ec 246 or 146)</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Child and Adolescent Psychology (Psy 230)</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Group Requirements and Electives</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>16</td>
<td>16</td>
<td>17</td>
<td></td>
</tr>
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</table>

| Junior Year (scheduled for fall 1971) | | | |
| Seminar in Dental Hygiene | 1      | | |
| Human Development (home Ec 366) | 3      | | |
| Oral Histology (Chem 391) | 3      | | |
| Dental Materials (Dent 302) | 3      | | |
| Techniques of Oral Propylaxis (Dent 310) | 3      | | |
| Dental Anatomy (Dent 303) | 3      | | |
| General and Oral Pathology (Dent 302) | 3      | | |
| Oral Microbiology (Micro 307) | 2      | | |
| Periodontics (Dent 301) | 3      | | |
| Drugs and Dental Therapeutics (Pharm 341) | 3      | | |
| Group Requirements and Electives | 8      | 7      | 7      |
| 17              | 16     | 16     |

| Senior Year | | | |
| Dental Ethics and Jurisprudence (Dent 312) | 1      | | |
| Roentgenology (Dent 400) | 3      | | |
| Preventive Dentistry (Dent 306) | 3      | | |
| Clinical Practice (Dent 311) | 3      | 3      | 3      |
| Clinical Oral Propylaxis (Dent 402) | 3      | | |
| Dental Hygiene (Dent 401) | 3      | | |
| Community Dental Hygiene (Dent 403) | 3      | | |
| Field Practice (Dent 410) | 2      | 2      | 2      |
| Problems in Dental Hygiene (Dent 411) | 2      | 2      | 2      |
| Seminar in Dental Hygiene | 1      | 1      | 1      |
| Dental Literature | 1      | 1      | 1      |
| Electives and Group Requirements | 6      | 4      | 4      |
| 15              | 17     | 17     |
study is designed to train the student in acting, directing, designing, playwriting and the technical phases of dramatic production and to give him experience in these areas; to prepare him to teach and direct in the high school theater and the college and university theater; and to relate through the study of the art of the theater the place of theater in the societies of the past and the present. The University of Montana Drama Department offers work leading to the Bachelor of Arts, Bachelor of Fine Arts, Master of Arts and Master of Fine Arts degrees in drama.

The B.A. and M.A. programs are oriented more towards a liberal arts concept, the B.F.A. and M.F.A. programs toward pre-professional and professional training in the theater arts.

University of Montana graduates in theater and drama are presently teaching in high school theater, teaching in college and university theater, radio, the motion picture, television, and the professional theater.

### SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN DRAMA

In addition to the general requirements listed earlier, the following special requirements must be completed for the Bachelor of Arts degree with a major in drama: Drama 101, 121-122-123, 131-132-133, 201-202-203, 244, 251, 291-292-293, 311, 349 (4 cr.), plus a minimum of 6 additional elective credits in Drama. All drama majors are required to enroll in Drama 260 or 300, Drama Workshop, for three years.

The following courses outside the drama department are required: English 100, 200, 244 and 343. HPER, 3 credits in ballet, modern dance or fencing. Group requirements I, II, III. (Drama requirements meet Group IV.)

The foreign language requirement listed earlier in the catalog must be satisfied for the Bachelor of Arts degree.

Senior comprehensive examinations are required for all graduating students.

Seniors must submit for graduation an original play, or a prompt book for the production of a play and also must direct a play with a teaching major or minor in Drama are listed under Education.

Drama majors electing the teaching major are exempted from Drama 301 and 302. Due to credit limitations, the B.A. degree is suggested.

### PROGRAM FOR THE B.A. AND B.F.A. DEGREES

#### Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drama 101</td>
<td>3</td>
</tr>
<tr>
<td>Drama 121-122-123</td>
<td>3, 3, 3</td>
</tr>
<tr>
<td>Drama 131-132-133</td>
<td>4, 4, 4</td>
</tr>
<tr>
<td>Drama 200</td>
<td>2, 2</td>
</tr>
<tr>
<td>Drama 251</td>
<td>3</td>
</tr>
<tr>
<td>English 100</td>
<td>3</td>
</tr>
<tr>
<td>Language (French recommended) or Electives from Groups I, II, III</td>
<td>5, 5, 5</td>
</tr>
<tr>
<td>HPER 100 (Ballet, Modern Dance or Fencing)</td>
<td>1, 1, 1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18, 18, 18</strong></td>
</tr>
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#### Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Drama 200</td>
<td>2, 2</td>
</tr>
<tr>
<td>Drama 251, 202, 203</td>
<td>2, 2, 2</td>
</tr>
<tr>
<td>Drama 244</td>
<td>2</td>
</tr>
<tr>
<td>English 300</td>
<td>3</td>
</tr>
<tr>
<td>Group Electives or Language</td>
<td>5, 5, 5</td>
</tr>
<tr>
<td>*Electives</td>
<td>3-5, 2-4, 5-7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15-17, 15-17, 15-17</strong></td>
</tr>
</tbody>
</table>

For B.F.A. degree with Acting emphasis take Music 100-Voice Fencing, if not previously taken.

#### Junior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drama 300</td>
<td>2, 2, 2</td>
</tr>
<tr>
<td>Drama 301, 302, 303</td>
<td>2, 2, 2</td>
</tr>
<tr>
<td>Drama 311</td>
<td>4</td>
</tr>
<tr>
<td>English 321</td>
<td>3</td>
</tr>
<tr>
<td>English 343</td>
<td>3</td>
</tr>
<tr>
<td>*Electives</td>
<td>7-9, 8-10, 8-10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16-18, 16-18, 16-18</strong></td>
</tr>
</tbody>
</table>

Senior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drama 499</td>
<td>3</td>
</tr>
<tr>
<td>*Electives</td>
<td>6, 6, 6</td>
</tr>
</tbody>
</table>

*B.A. degree candidates are not required to enroll in these courses for credit.

*B.F.A. candidates check current departmental requirements for electives in area of emphasis.

### FOR UNDERGRADUATES

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 (101) REHEARSAL AND PERFORMANCE 1 R-6</td>
<td>Enter any quarter. Prereq c/i. Students engaged in any aspect of production including acting, directing, lighting, stagewear, makeup, costumes, properties, business and publicity, are eligible for registration.</td>
</tr>
<tr>
<td>101 (112) INTRODUCTION TO THE THEATER 3</td>
<td>Enter any quarter. Prerequisites upon the performed play, from the Greeks through contemporary theater.</td>
</tr>
<tr>
<td>201-202-203 (261-262-263) DRAMATIC LITERATURE 3</td>
<td>Enter any quarter. Upon character and scene work. Additional work in voice and pantomime.</td>
</tr>
<tr>
<td>241 (251) STAGE MAKE-UP 2</td>
<td>Principles and practice in theatrical make-up. Students will work on make-up for major productions.</td>
</tr>
<tr>
<td>251-252-253 (352-353-353) STAGE SPEECH 3</td>
<td>Voice production and projection, phonetics, diction, and oral interpretation of dramatic literature.</td>
</tr>
</tbody>
</table>

### FOR UNDERGRADUATES AND GRADUATES

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 (394) WORKSHOP IN THEATER V 2-10</td>
<td>2-10 R-20 prereq prior work in theater or drama courses. Advanced laboratory production in all the arts of the theater.</td>
</tr>
<tr>
<td>305 PLAYWRITING 2</td>
<td>R-6 prereq c/i. Techniques and practice in writing short and full length plays.</td>
</tr>
<tr>
<td>307-308-309 THE DRAMA (see English)</td>
<td></td>
</tr>
<tr>
<td>311-312-313 (223, 422) DIRECTING 4</td>
<td>prereq 8 credits in drama. Directing the play. (311) Basic techniques. (312-313) Types and styles of production. Assignments in conjunction with the Theater and Opera Workshops.</td>
</tr>
<tr>
<td>321-322-323 (351) ADVANCED ACTING 3</td>
<td>prereq 221-222-223 or c/i. Advanced scene work. Historic and contemporary styles of acting.</td>
</tr>
<tr>
<td>329 (342) ACTING FOR TELEVISION 3</td>
<td>prereq 121. Theory and practice of acting before the television camera.</td>
</tr>
<tr>
<td>331 (332) ADVANCED STAGECRAFT 3</td>
<td>R. Advanced studies and practice in scenery construction and painting, properties, sound, lighting, costuming and related areas.</td>
</tr>
<tr>
<td>332-334 SCENIC DRAFTING 2</td>
<td>Drafting techniques for the scene designer and technical director.</td>
</tr>
<tr>
<td>335-336 (343) STAGE LIGHTING 3</td>
<td>prereq 123. Theatrical lighting theory, instruments and practice. Students will work on lighting for major productions.</td>
</tr>
<tr>
<td>371 (321) THEATER PRODUCTION IN THE HIGH SCHOOL 3</td>
<td>Problems of high school theater including play selection, staging, acting, promotion, organization. (Not for drama majors.)</td>
</tr>
<tr>
<td>374 CHILDREN'S THEATER 3</td>
<td>prereq c/i. History and objectives of the theater for the child audience. Techniques of acting, directing, and producing plays for children.</td>
</tr>
<tr>
<td>377 (364) CREATIVE DRAMATICS 3</td>
<td>prereq c/i. Creative play, improvisation, and children's literature in dramatic form as a teaching method for non-theater subjects at the elementary school level.</td>
</tr>
<tr>
<td>381 ART HISTORY OF THE THEATER 2</td>
<td>Visual arts of the theater as an important aspect of the aesthetic theories developed in selected periods of history.</td>
</tr>
<tr>
<td>400 TOURING 3</td>
<td>2-10 R-20 prereq consent of department chair. Laboratory experience in total play production through participation in state, regional, national and international touring production programs.</td>
</tr>
</tbody>
</table>
ECONOMICS

is that branch of the social sciences which deals with man's efforts to satisfy his wants by utilizing the scarce means provided by nature. The department considers its teaching goals to be three fold: (1) To present to students the basic theoretical tools of economic analysis, relevant facts and institutional material, which will assist them in developing analytical reasoning. (2) To introduce students majoring in economics to the various special fields of study within economics. This training along with extensive work in the other liberal arts and sciences, is intended to instill breadth of intellectual interest, critical habits of thought, a problem-solving attitude, and facility of expression. (3) To help meet, through graduate work, the increasing demands for competent professional economists in industry, commerce, government and education.

Courses cover general economic theory, public finance and taxation, labor economics, monetary theory and prices, international economics, public utilities and comparative economic systems.

Students may major in economics leading to a Bachelor of Arts or Bachelor of Science degree or a combination of economics and political science. Graduate work leading to a Master of Arts degree with a major in economics is given.

Special Requirements for the Undergraduate Degree

In addition to the general requirements for graduation listed earlier in the catalog, 90 credits in Economics must be completed for the Bachelor of Arts degree with a major in economics. The student must also pass the 300 level English composition course with a "C" or above or pass a departmental examination before he has completed 150 credits. Five quarters of one foreign language or three quarters in each of two languages.

The requirements for the Bachelor of Science degree with a major in Economics are the same as for the Bachelor of Arts degree with a major in Economics, except that the foreign language requirement does not apply. Mathematics 153 and General 151-152-153 (Humanities) are required.

Unless circumstances peculiar to the student's best interest indicate otherwise, the student shall take the sophomore or junior year, Economics 201-202-203; Mathematics 116 (or equivalent), 125, Computer Science 101; Political Science 201; History 201-202; Anthropology 132; Sociology 110; in the junior or senior year, Economics 301 and 311. It is strongly recommended that all students take Business Administration 201-202, Economics and Mathematics 495 as directed by the chairman of the department. It is also suggested that the student take Business Administration 201-202.

The following may be counted as part of the 90 credits required for a Major in Economics: Geography 211; History 347-348-349, 373-374-375, 473-474; Political Science 365; Mathematics 118 or 153, 344-345, Business Administration 360. It is recommended that the student take Business Administration 201-202.

Economics-Mathematics concentration. In addition to the diversification requirements listed above the student may elect a concentration in Economics and Mathematics. This concentration shall include: Economics 201-202-203, 301, 311-312-313, 350-351, and 451-452, and Mathematics 341-342-343 or 344-345-346 and one year of calculus. (This program is not a joint major but represents instead concentrated undergraduate preparation for graduate study in theoretical economics.)

Combined Majors. Minimum of 60 credits. Combined majors in economics and political science may be earned by meeting the following requirements with the remainder of credits selected according to the student's interests. Economics 201-202-203; Mathematics 125; Economics 301, 311, and at least 12 additional credits in either division to present at least 16 additional credits of which 12 must be in upper division courses.

Graduate Work. See Graduate School.

Undergraduates

For Explanation see Course Descriptions (Index)

101 CULTURAL HISTORY OF AMERICA

5, Su 3, Institutions of development of economic society; nature, origins and problems of modern capitalism. (Not open to students who have had Economics 201, 202 and 203.)


For Undergraduates and Graduates

201 MONEY AND BANKING 4 prereq 203 Role of money; banking as suppliers of money; Federal Reserve System as regulator of money; monetary theories, history and policy.


205 STATE AND LOCAL TAXATION 3 prereq 204. Revenues and expenditures on state and local levels.


315-316 DEVELOPMENT OF ECONOMIC THEORY W 4, S 2, Su 3 prereq 203. (315) Economic ideas from early times to 1890. (316) Economic theories from 1890 to the present.

321-322 LABOR ECONOMICS 3 prereq 203, 321 Institutional and legal background of labor markets. (322) Economics of labor markets.

324 INDUSTRIAL RELATIONS 3 prereq 203. Problems and public policy in labor-management relations.

331-332 INTRODUCTION TO INTERNATIONAL ECONOMICS 4, 5, Su 3, prereq 203, (331) Theoretical analysis; (332) Problems of policy-making.


345 ECONOMIC DEVELOPMENT 4 prereq 203. Theoretical determinants of economic growth in underdeveloped and rich countries.

365 PUBLIC UTILITY ECONOMICS 3 prereq 203. Analysis of costs and pricing policies; economic aspects of regulation.

370 ECONOMICS OF TRANSPORTATION 3 prereq 303. Economic significance, systems, freight rates and their relations to location of industries and market centers, regulation.

374 COMPARATIVE ECONOMIC SYSTEMS 4, Su 3, prereq 203. Capitalism, fascism, socialism, communism; evaluation.

375 THE RUSSIAN ECONOMY 4, Su 3 prereq 203.

376 MONOPOLY AND COMPEITION 3 prereq 311. Theories of imperfect markets and workable competition as applied to public policy.
382 CONTEMPORARY ECONOMIC PROBLEMS 3 prereq 203.

385 LAND ECONOMICS 3 prereq 301. Economic and physical characteristics of land and the institutional background of real property; classifications of properties and market analysis; cyclical market fluctuation; impact of supply and demand; city growth, structure and planning; land use control, and real estate investment analysis.

406 MONETARY THEORY 4 prereq 301.

410 ADVANCED ECONOMIC ANALYSIS 4 prereq 25 credits in economics including 311.

451-452 MATHEMATICAL ECONOMICS 4 prereq 311 and Math 118 or . (451) Constrained maximization, maximization over time; (452) Input-output analysis, general equilibrium and programming, utility theory and game theory models.

460-461 ECONOMETRICS 4 prereq Math 125; 118 or 122 (350). General linear regression models; (351) Econometric theory and multiple equation models.

490 ADVANCED PROBLEMS V 1-2 R-6 prereq 12 credits in economics and c/l.

495 SEMINAR IN ECONOMICS V 1-3 R-12 prereq c/l.

FOR GRADUATES

501 GRADUATE RESEARCH V R-4.

510-511-512 ECONOMICS 3. Elements of analytical economics: the American economy, characteristics, performance; macro-economic concepts and policy, monetary and fiscal policy, growth and stabilization; markets, pricing of outputs and inputs; government regulation; distribution theory, growth policies; the public economy; the world economy, and the economic development. (Open only to MBA and MRA students.)

699 THESIS V R-15.

EDUCATION

Teacher education at the University of Montana prepares for teaching in any of the twelve grades. Prospective elementary and secondary teachers must have earned a bachelor's degree, have satisfactorily completed certain specified courses, and have demonstrated competence in student teaching before they become eligible for recommendation by the University of Montana for state certification to teach. Patterns of courses to be completed are planned in terms of the particular fields in which the student expects to teach.

After they have been granted a bachelor's degree and have been certified to teach, persons in Education may take advanced work at the graduate level which will prepare them for specialized positions such as school administrator, supervisor, counselor, coordinator, reading specialist, and research director; or build up their backgrounds in the field or fields which they teach. The University of Montana offers graduate work leading to the master's and doctor's degrees.

A six-year program in school administration (two years of graduate work beyond the bachelor's degree) is offered. The program is designed for practicing and prospective school administrators of demonstrated ability and promise. Admission to the Graduate School is a prerequisite for admission to graduate programs.

General certification requirements for Montana's elementary, junior and senior high schools are set forth below. In addition to satisfying course, credit, and degree requirements, an applicant for certification in Montana must be (1) a citizen of the United States (provisional certification is available for non-citizens upon request of a board of trustees), (2) at least 18 years of age, and (3) able to present a satisfactory health certificate signed by a physician. Additional information may be secured from the Dean of the School of Education.

The School of Education at the University of Montana is accredited by the National Council for the Accreditation of Teacher Education and by the Northwest Association of Secondary and Higher Schools.

ADMISSION TO TEACHER EDUCATION. Students preparing to teach in the elementary grades should major in Education; those preparing to teach particular subjects, either in junior or senior high schools, major in the principal subject to be taught or in Education. A free-of-charge on the spot interview with a representative of the School of Education office at the earliest opportunity and receive advice concerning the planning of studies which will be most relevant to their teaching objectives. All students preparing to teach must apply for admission to teacher education at the time they enroll for Education 200. To be admitted to teacher education, a student must have a grade point average of 2.0 or better.

ADMISSION TO STUDENT TEACHING. Application for student teaching must be made on forms obtained from the Director of Student Teaching.

Elementary: to qualify for this assignment, the student must (1) have a cumulative gpa of 2.3 or better, (2) have no grade below C in Education courses, (3) have the consent of the Director of Student Teaching and be registered in or have completed one or more courses in methods of elementary teaching.

Secondary: to qualify for this assignment, the student must (1) have a cumulative gpa of 2.3 or better, (3) have no grade below C in Education courses, (3) have completed at least 3/8 of the work in the major teaching field (and minor, if any) with a minimum gpa of 2.3 in the major teaching field (and minor, if any), (4) have the consent of the Director of Student Teaching.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN EDUCATION. In addition to the general requirements for graduation listed earlier in the catalog, the following credits in English composition, candidates for the degree of Bachelor of Arts in Education will meet the following requirements:

Preparation for Teaching in the Secondary Grades: Candidates majoring in education for the minor teaching field must (1) complete a minimum of 30 credits in the following areas: (a) educational sociology or history or philosophy of education; (b) audiovisual, multi-media, or library service; (c) counseling, guidance, remedial or special education; and (d) special methods in a major teaching field. Students wishing to qualify for standard secondary teacher certification are required to earn at least 24 more credits in a major teaching field, credit and major teaching length, and 36 more credits in a minor teaching field or to earn 60 or more credits in an extended major teaching field. Requirements for major and minor teaching fields may be found in the last few pages of the Education section of the catalog.

SUGGESTED CURRICULUM IN SECONDARY EDUCATION

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eng. 100, Lower Division Composition 1</td>
<td>3</td>
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<tr>
<td>Group Requirements: Life Sciences ...</td>
<td>12</td>
</tr>
<tr>
<td>Group Requirements: Behavioral Sciences</td>
<td>12</td>
</tr>
<tr>
<td>Group Requirements: Humanities</td>
<td>9</td>
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<tr>
<td>Electives or Courses in Math or Minor Teaching Fields ...</td>
<td>8-14</td>
</tr>
<tr>
<td>HPER 100 or 115-120, Physical Education or Prof. Activities ...</td>
<td>3</td>
</tr>
<tr>
<td>47-53</td>
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<table>
<thead>
<tr>
<th>Sophomore Year</th>
<th>Cr.</th>
</tr>
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<tbody>
<tr>
<td>Eng. 300, Upper Division Composition 2</td>
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<tr>
<td>Group Requirements: Physical Sciences or Math ...</td>
<td>12</td>
</tr>
<tr>
<td>Group Requirements: Behavioral Sciences</td>
<td>12</td>
</tr>
<tr>
<td>Educ. 200, Orientation to Education</td>
<td>2</td>
</tr>
<tr>
<td>Educ. 201, Educational Activities ...</td>
<td>5</td>
</tr>
<tr>
<td>Electives or Courses in Major or/and Minor Teaching Fields ...</td>
<td>30-36</td>
</tr>
<tr>
<td>47-53</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior and Senior Years</th>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eng., An Advanced Course in Composition ...</td>
<td>3</td>
</tr>
<tr>
<td>Educ. 401, Educational Measurement ...</td>
<td>4</td>
</tr>
<tr>
<td>Educ. Required Courses from Options Allowed ...</td>
<td>12</td>
</tr>
<tr>
<td>Educ. 305, Secondary School Teaching Procedures ...</td>
<td>5</td>
</tr>
<tr>
<td>Educ. 405, Student Teaching; Secondary ...</td>
<td>10</td>
</tr>
<tr>
<td>Educ. 407, Problems in Teaching ...</td>
<td>3</td>
</tr>
<tr>
<td>Electives or Courses in Major and/or Minor Teaching Fields ...</td>
<td>52-64</td>
</tr>
<tr>
<td>89-101</td>
<td></td>
</tr>
</tbody>
</table>

Preparation for Teaching in the Elementary Grades. Candidates must earn a minimum of 43 credits in Education including the following required courses totaling 43 credits: Education 200, 202, 208, 309, 310, 311, 312, 340, 404, 407.

In addition, the student will complete the following requirements:

English, 21 credits: English composition; Social Studies, 20 credits: Science, 18 credits; Mathematics, 8 credits; Health, Physical Education and Recreation, 8 credits; Art, 8 credits; and Music, 6-8 credits.

For elementary teachers, Group I and II requirements may be satisfied by the following: General 125, 126, 127, and 9 credits in Mathematics. Other graduation requirements are normally satisfied by completion of the program.

It is recommended that elementary teachers take Health, Physical Education and Recreation 115-120 as part of their required work in Physical Education during the freshman and sophomore years.

Elementary Education majors may use their electives to strengthen any of the required academic fields, or to complete a minor in any of the following areas: Art, Music (vocal only), Foreign...
Language, Health, Physical Education and Recreation, Library Science, Special Education. Approved minor patterns are available at the School of Education Office.

Any student who plans to do student teaching in the kindergarten must have completed Education 301, Early Childhood Education, before registering for student teaching.

Suggested Curriculum in Elementary Education:

**Freshman Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eng. 100, Lower Division Composition</td>
<td>3</td>
</tr>
<tr>
<td>Gen. 125-126-127, Science for Elementary Teachers</td>
<td>15</td>
</tr>
<tr>
<td>Soc. 111, Social Problems of Special Education</td>
<td>5</td>
</tr>
<tr>
<td>Gen. 151-152-153, Introduction to the Humanities</td>
<td>9</td>
</tr>
<tr>
<td>Geog. 101, Physical Elements of Geography</td>
<td>3</td>
</tr>
<tr>
<td>Art 122-123-124, Music Education in the Elementary Schools</td>
<td>8</td>
</tr>
<tr>
<td>HPER 100 or 115-120, Physical Education or Prof. Activities</td>
<td>3</td>
</tr>
<tr>
<td>Elective(s)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educ. 200, Orientation to Education</td>
<td>3</td>
</tr>
<tr>
<td>Educ. 201, Education Laboratory</td>
<td>2-6</td>
</tr>
<tr>
<td>Educ. 202, The Elementary School Child</td>
<td>5</td>
</tr>
<tr>
<td>Eng. 300, Upper Division Composition</td>
<td>3</td>
</tr>
<tr>
<td>HPER 199, First Aid</td>
<td>3</td>
</tr>
<tr>
<td>Hist. 200, United States History</td>
<td>3</td>
</tr>
<tr>
<td>Math 100, Theory of Arithmetic</td>
<td>3</td>
</tr>
<tr>
<td>Pol. 200, American Government</td>
<td>3</td>
</tr>
<tr>
<td>Soc. Sci., Elective Courses</td>
<td>5</td>
</tr>
<tr>
<td>Math, Elective Course</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
</tr>
</tbody>
</table>

Junior and Senior Years

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educ. 340, Survey of Children's Literature</td>
<td>3</td>
</tr>
<tr>
<td>Educ. 308, Teaching Elementary School Reading</td>
<td>3</td>
</tr>
<tr>
<td>Educ. 339, Teaching Elementary School Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Educ. 310, Teaching Elementary School Social Studies</td>
<td>3</td>
</tr>
<tr>
<td>Educ. 311, Teaching Elementary School Science</td>
<td>3</td>
</tr>
<tr>
<td>Educ. 312, Teaching Elementary School Language Arts</td>
<td>3</td>
</tr>
<tr>
<td>Educ. 326, Advanced Course in Composition</td>
<td>3</td>
</tr>
<tr>
<td>P.E. 304-305, Elementary School Health</td>
<td>6</td>
</tr>
<tr>
<td>Gen. 300, Conservation of Natural and Human Resources</td>
<td>3</td>
</tr>
<tr>
<td>Educ. 300, Teaching Physical Education in Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>HPER 378, The School Health Program</td>
<td>3</td>
</tr>
<tr>
<td>Soc. Sci., Elective Courses</td>
<td>3</td>
</tr>
<tr>
<td>Educ. 404, Student Teaching: Elementary</td>
<td>15</td>
</tr>
<tr>
<td>Educ. 407, Problems in Teaching</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>24-38</td>
</tr>
</tbody>
</table>

**RECOMMENDATIONS FOR MONTANA TEACHING CERTIFICATES.** The University of Montana recommends its graduates who meet certification requirements to the State Department of Public Instruction. All such recommendations must be approved by the Board of Control of the State School of Education. Students who expect to teach in states other than Montana should investigate specific requirements because they differ in various states.

Academic and professional requirements for University recommendation for certification to teach in fully accredited high schools of Montana are as follows:

1. A bachelor's degree from the University of Montana or other approved institution of higher education.
2. Twenty-four or more quarter credits in Education designated by the Dean of the School of Education (see Preparation for Secondary Teaching below).
3. Preparation in one or more special subject areas commonly taught in the secondary schools as indicated under COURSE REQUIREMENTS IN MAJOR AND MINOR TEACHING FIELDS, listed later.

Academic and professional requirements for University recommendation for certification to teach in fully accredited elementary schools of Montana are as follows:

1. Bachelor's degree from the University of Montana or other approved institution of higher education showing that the holder has completed a four-year course of elementary school education.
2. Specific requirements in general education that have particular reference to teaching areas in the elementary grades.

Students who expect to be certified to teach in the secondary grades are required to file with the School of Education at least two quarter credits preceding the quarter of practice teaching a statement of their intended teaching fields. Those students who expect to be certified to teach in the elementary grades will similarly submit a statement setting forth their proposed programs. Each candidate for a certificate who has not already received credit in Student Teaching (Educ 404 or 405) will be assigned definite quarters in which he must register for that course.

**SEQUENCE OF CERTIFICATION COURSES IN SECONDARY EDUCATION TO BE TAKEN BY STUDENTS NOT MAJORING IN EDUCATION.**

Sophomore year: Educ. 200, 2 credits.

Junior year: Educ. 205, 4 credits.

Senior year: Educ 305, 5 credits; 405, 10 credits; 407, 3 credits.

**SEQUENCE OF CERTIFICATION COURSES IN ELEMENTARY EDUCATION.** Since certification for teaching at the elementary level is based solely upon the Bachelor's Degree in Elementary Education, see the preceding section on preparation for teaching in the elementary grades for requirements.

Variations from these patterns of required courses for elementary and secondary standard teaching certification are permissible only with the approval of the Dean of the School of Education.

**PREPARATION FOR PROFESSIONAL CERTIFICATION.** The Montana professional certificate is issued to applicants having 3 or more years successful teaching experience who have completed a minimum of 45 quarter credits in approved courses beyond the bachelor's degree. Students intending to qualify for this certificate are required at the beginning of the program to outline such programs with and receive approval from the Dean of the School of Education.

**PREPARATION FOR SCHOOL LIBRARIANS.** The library service program is designed to train school and teacher-librarians to meet the requirements of the Northwest Association of Secondary and Higher Schools and of the state of Montana. The minimum requirement for schools of under 100 enrollment includes Education 351, 344, and 345. The student planning a more extended program should consult the library service instructor for advice on additional courses.

**GRADUATE WORK.** See Graduate School Bulletin.

**FOR UNDERGRADUATES**

*For Explanation see Course Descriptions (Index)*

1. **200, ORIENTATION TO EDUCATION.** Teaching as a profession. The American public school and its purposes. Problems, issues, and trends in education today. Career opportunities in education, certification requirements.

2. **201, EDUCATION LABORATORY V B-6.** prereq c/l.

3. **THE ELEMENTARY SCHOOL CHILD.** 5 prereq 200, coreq 201. Principles of growth and development and the psychology of learning as applied to the elementary school child. A minimum of 6 hours per week will be spent in observation of children in the school environment.


5. **METHODS OF TEACHING PHYSICAL EDUCATION ON THE SECONDARY LEVEL.** (See Health, Physical Education and Recreation.)

6. **SECONDARY SCHOOL TEACHING PROCEDURES.** 5 prereq 200 and 205.

7. **TEACHING ELEMENTARY SCHOOL READING.** 3 prereq 202.

8. **TEACHING ELEMENTARY SCHOOL MATHEMATICS.** 3 prereq 202 and an introductory course in modern mathematics or c/l.


12. **SCHOOL MUSIC.** (See Music.)

13. **SCHOOL MUSIC.** (See Music.)

14. **METHODS IN TEACHING HEALTH.** (See Health, Physical Education and Recreation.)

15. **OBSERVATION AND PARTICIPATION: ELEMENTARY V R-6.** prereq cor e q an elementary methods of teaching course and c/l.

16. **OBSERVATION AND PARTICIPATION: SECONDARY V R-6.** prereq cor e q 305 or c/l.

17. **STUDENT TEACHING: ELEMENTARY V R-15.** prereq 200 and consent of Director of Student Teaching.

18. **STUDENT TEACHING: SECONDARY V R-10.** prereq 200 and consent of Director of Student Teaching.

19. **PROBLEMS IN TEACHING.** 3 prereq c/l. Current problems and issues in teaching.

**FOR UNDERGRADUATES AND GRADUATES**

20. **METHODS OF TEACHING EARTH SCIENCE.** (See Geology.)

21. **METHODS OF TEACHING SECONDARY ART.** (See Art.)

22. **SCHOOL PUBLICATIONS AND TEACHING METHODS.** (See Journalism.)

23. **METHODS OF TEACHING BIOLOGY.** (See General.)

24. **TEACHING OF ENVIRONMENTAL EDUCATION.** 3 prereq 300 and c/l.
327 PROBLEMS IN ENVIRONMENTAL EDUCATION 3 prereq c/i. Designing, selection, and evaluation of materials for the teaching of Environmental Education.

328 METHODS OF TEACHING PHYSICS. (See Physics.)

329 METHODS OF TEACHING HIGH SCHOOL CHEMISTRY. (See Chemistry.)

331 EARLY CHILDHOOD EDUCATION 3 prereq c/i. Theory and techniques of teaching in pre-school and primary levels of education. Observation and participation in pre-school programs. Required teaching experience and c/i. Practical experience.

334 REMEDIAL READING 3 prereq a basic course in teaching of reading or teaching experience, and c/i. Diagnosis and treatment of reading difficulties at elementary, secondary and college levels. Methods of remedial teaching for special education teachers, and administrators who wish to initiate remedial programs.

340 SURVEY OF CHILDREN'S LITERATURE 3.

341 ADMINISTRATION OF THE SMALL PUBLIC AND COLLEGE LIBRARY 4 prereq c/i. Objectives of library service, library routines in a school, public or college library under the librarian's place in governmental organization, library extension work.

342 INTEGRATING MULTI-MEDIA MATERIALS IN INSTRUCTION 3.

343 ORGANIZATION AND ADMINISTRATION OF THE SCHOOL LIBRARY 3.

344 CATALOGING AND CLASSIFICATION 4, Su 3 prereq c/i.

345 MATERIALS SELECTION AND BIBLIOGRAPHY 4, Su 3 prereq c/i.

346 LIBRARY REFERENCE MATERIALS 4, Su 3 prereq c/i.

347 AUDIOVISUAL COMMUNICATION 3. Utilization of sound and visual teaching aids. Extensive laboratory work in basic instructional materials and operation of AV equipment.

360 EDUCATIONAL SOCIOLOGY 3. Education in modern social, economic, and political life; the school as a social institution; the problem of American life which affect and are affected by the work of the public schools.

370 THE TEACHER AND SCHOOL ORGANIZATION 3. The teacher's relationship to the organization, management, and financing of American public education with special emphasis on personnel problems, community relations, and organizational structure of schools.

373 THE SCHOOL HEALTH PROGRAM. (See Health, Physical Education and Recreation.)

380 METHODS OF TEACHING TYPEWRITING. (See Business Administration.)

381 METHODS OF TEACHING BOOKKEEPING AND BASIC BUSINESS. (See Business Administration.)

382 METHODS OF TEACHING ENGLISH. (See English.)

385 PHILOSOPHY OF VOCATIONAL BUSINESS EDUCATION (See Business Administration.)

386 PRACTICES IN VOCATIONAL BUSINESS EDUCATION. (See Business Administration.)

387 COOPERATIVE VOCATIONAL EDUCATION PROGRAMS. (See Business Administration.)

390 METHODS OF TEACHING FOREIGN LANGUAGES. (See Foreign Languages.)

395 METHODS OF TEACHING FOREIGN LANGUAGES IN ELEMENTARY SCHOOLS. (See Foreign Languages.)

411 SUPERVISION AND TEACHING OF THE LANGUAGE ARTS 3 prereq teaching experience and c/i. Analysis of current methods of teaching of language arts in the elementary school.

412 SUPERVISION AND TEACHING OF READING 3 prereq teaching experience and c/i. Characteristics of good reading programs and their development in accordance with present day understandings of children and youth.

414 SUPERVISION AND TEACHING OF SOCIAL STUDIES IN THE ELEMENTARY SCHOOL 3 prereq teaching experience and c/i. Curriculum trends, instructional practices, teacher-pupil planning and evaluation, unit organization, integration with other areas, and use of community resources.

417 SUPERVISION AND TEACHING OF ARITHMETIC 3 prereq teaching experience and c/i. Curriculum trends, instructional materials, research, and supervisory techniques relevant to a modern elementary school arithmetic program.

418 (318) SUPERVISION AND TEACHING OF SCIENCE IN THE ELEMENTARY SCHOOL 3 prereq Gen. 128-128-128 or = teaching experience and c/i. Curriculum planning, development and use of instructional materials, teaching procedures.

420 METHODS OF TEACHING SECONDARY SCIENCE 3 prereq 200, a science minor and c/i. Problems involved in development of an adequate high school science program: curriculum methods, instructional materials.

421 METHODS OF TEACHING HOME ECONOMICS. (See Home Economics.)

422 TEACHING SPEECH IN THE SECONDARY SCHOOL. (See Speech Communication.)

423 PRINCIPLES AND PRACTICES IN TEACHING OF SECONDARY MATHEMATICS 3 prereq completion of at least 3 sem of the major or minor teaching field in mathematics.

424 METHODS OF TEACHING COMMUNICATION SKILLS 3 prereq c/i.

425 BASIC TRAFFIC SAFETY EDUCATION 3 prereq c/i. Supervised experience in teaching driving and theoretical aspects of driver education. General safety education. To prepare teachers for Safety Education and Driver Training courses in high schools.

426 ADVANCED TRAFFIC SAFETY EDUCATION 3 prereq a basic course in driving training or experience in teaching driving training. For students who have had experience in this field. General safety education.

427 READING IN JUNIOR AND SENIOR HIGH SCHOOL 3 prereq 205 or =. Programs, materials, testing, reading in the content fields, research, and development.

428 METHODS OF TEACHING SOCIAL STUDIES IN SECONDARY SCHOOLS 3 prereq 205 or teaching experience. Problems involved in the teaching of social studies in junior and senior high school in children's literature. Work with children in public libraries, including story telling and organization of the children's department in the public library.

433 THE SLOW AND RETARDED LEARNERS 3 prereq 12 credits in Education. Needs, aims, traits, identification, curriculum, teaching methods, and research.

434 THE BRIGHT AND GIFTED PUPILS 3 prereq 12 credits in Education. Needs, aims, traits, identification, curriculum, teaching methods, and research.

435 REMEDIAL READING LABORATORY 3 R-9 prereq or coreq and c/i. Supervised practice in diagnosis and remedial instruction.

438 ADMINISTRATION OF THE INTERMEDIATE SCHOOL 3 prereq teaching experience or teaching experience. Objectives, organization, class scheduling, and co-curricular activities in middle schools or junior high schools.

440 LIBRARY PROGRAMS IN ELEMENTARY SCHOOLS 3 prereq Gen. 205. Readings in school libraries and use of classroom collections and centralized libraries for curriculum enrichment experience. Reading Guidance, library skills. Responsibilities of classroom teachers, elementary librarians, library supervisors, elementary principals and administrators.

441 EVALUATION OF SCHOOL LIBRARY SERVICES AND MATERIALS 3 prereq 12 credits in Library Service. Methods of evaluating and improving school library services to teachers and students.

442 LIBRARY WORK WITH CHILDREN 3 prereq c/i and a course in Children's Literature. Work with children in public libraries, including story telling and organization of the children's department in the public library.

443 LIBRARY WORKSHOP 3 R-9 prereq c/i. Problems of library service. General sessions and committee work; individual work on problems of special interest within the workshop topic.

444 LIBRARY SEMINAR V R-10 prereq 12 or more hours in Library Service and consent of the Director of Library Service. Independent study and research. Group analysis and discussion of individual projects.

445 LIBRARY PRACTICE 5 prereq c/i. The student performs library routines in a school, public or college library under the supervision of a trained professional librarian.

447 PREPARATION OF INEXPENSIVE INSTRUCTIONAL MATERIALS 3 prereq 347. Graphic techniques in the areas of lettering, coloring, enlarging, mounting, and production in the preparation of media for projected and non-projected use.

448 UTILIZATION OF AUDIOVISUAL MEDIA 3 prereq 347. Selection and utilization of major types of audiovisual materials for an instructional communication system.

449 ADMINISTRATION OF AUDIOVISUAL COMMUNICATION PROGRAMS 3 prereq basic courses in field or c/i. Management of resources and administration of audiovisual communications media for elementary or secondary school programs.

450 SECONDARY SCHOOL GUIDANCE 4 prereq 205 or teaching experience. Orientation to the need, organization, and methodology of guidance services, and methodology of guidance services in the elementary schools.

451 GUIDANCE IN THE ELEMENTARY SCHOOL 4 prereq 308, 308, 310, 311, 312 or teaching experience. Orientation to the need, organization, and methodology of guidance services in the elementary schools.

452 EDUCATIONAL MEASUREMENT 4 prereq 205 or teaching experience. Basic principles of measurement of educational outcomes in elementary and secondary teaching: application of statistical techniques to educational data; analysis of standardized tests; construction and use of teacher-made tests.

461-462 HISTORICAL FOUNDATIONS OF AMERICAN EDUCATION 3. Enter either quarter. (461) to 1650; (462) 1650 to present.

490 INDEPENDENT STUDY V R-10 prereq c/i. Selected topics under the guidance of a staff member. Term papers may be required.
SCHOOL FACILITIES PLANNING V 2-4 prereq 570 or = and c/i. Procedures in determining school facility needs and preparation of educational specifications.

LEGAL BASIS OF PUBLIC EDUCATION 3 prereq 570 or = and c/i. Legal concepts of education in the United States; legal implications to work of the content of education. Legal problems affecting pupils, parents, teachers, administrators, and school board members in relation to the school.

PERSONNEL ADMINISTRATION 3 prereq 570 and c/i. Problems of certified and non-certified personnel (not student); selection, in-service training, assignment, supervision, and welfare.

COLLEGE TEACHING 3 prereq 20 credits of graduate work. The type of teaching applicable to the college level.

PROBLEMS IN TEACHING BOOKKEEPING. (See Business Administration.)

PROBLEMS IN TEACHING SHORTHAND AND TRANSCRIPTION. (See Business Administration.)

PROBLEMS IN TEACHING TYPEWRITING. (See Business Administration.)

UNIT COURSES IN BUSINESS EDUCATION. (See Business Administration.)

VOCATIONAL DEVELOPMENT THEORY 3 prereq 554 or c/i. A comparison of current theories of vocational development.

INDEPENDENT STUDY V 3-10 prereq consent of adviser and instructor. Selected topics under the guidance of a staff member.

SUPERVISION OF STUDENT TEACHING 3 prereq c/i. Philosophy, procedures, and problems in supervision of student teachers. For elementary and secondary teachers who work (or intend to work) with student teachers.

SEMINAR V R prereq c/i. Group analysis of problems in specific areas of education.

METHODS OF EDUCATIONAL RESEARCH 4. Research problems; their statement, organization, techniques, tabulation of materials, statistical concepts necessary for interpretation of research data. (An introductory course in statistics is highly desirable.)

EDUCATIONAL STATISTICS 4 prereq an introductory course in statistics and c/i.

RESEARCH V R-15 prereq c/i.

CURRICULUM TRENDS IN HIGHER EDUCATION 3 prereq c/i.

THE AMERICAN COMMUNITY/JUNIOR COLLEGE 3 prereq c/i.

ORGANIZATION AND ADMINISTRATION OF HIGHER EDUCATION 3 prereq c/i.

THESIS OR PROFESSIONAL WRITING V R-30.

**ART**

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art 123—Drawing</td>
<td>9</td>
</tr>
<tr>
<td>Art 125—A—Design</td>
<td>9</td>
</tr>
<tr>
<td>Art 125—B—Design</td>
<td>6</td>
</tr>
<tr>
<td>Art 125—Ceramics</td>
<td>2</td>
</tr>
<tr>
<td>Art 160—Layout and Lettering</td>
<td>2</td>
</tr>
<tr>
<td>Art 204—L—Survey of Western Art</td>
<td>9</td>
</tr>
<tr>
<td>Art 203—Printmaking</td>
<td>2</td>
</tr>
<tr>
<td>Art 238—Sculpture</td>
<td>3</td>
</tr>
<tr>
<td>Art 246—Water Color</td>
<td>3</td>
</tr>
<tr>
<td>Art 240—Painting</td>
<td>9</td>
</tr>
<tr>
<td>Art 305—Elementary School Art</td>
<td>9</td>
</tr>
<tr>
<td>Art—Ed. 305—Methods of Teaching</td>
<td>9</td>
</tr>
</tbody>
</table>

*Qualifies for K-12 certification endorsement.*
### BIOLOGICAL SCIENCE

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bot 101--General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>Bot-Zool 111--Introduction to Biology</td>
<td>5</td>
</tr>
<tr>
<td>Bot 114-5--General Botany</td>
<td>10</td>
</tr>
<tr>
<td>Zool 112-3--General Zoology</td>
<td>10</td>
</tr>
<tr>
<td>Bot 205--Local Flora (or Zool 206)</td>
<td>3-4</td>
</tr>
<tr>
<td>Bot-Zool 250--Basic Concepts of Ecology (or Bot 355)</td>
<td>3-5</td>
</tr>
<tr>
<td>Bot-Zool 455--Genetics</td>
<td>5</td>
</tr>
<tr>
<td>Gen 260--Conserv. of Nat. &amp; Hum. Resources</td>
<td>5</td>
</tr>
<tr>
<td>Gen-Educ 322--Methods of Teaching Biology</td>
<td>3</td>
</tr>
<tr>
<td>Gen 122--Evolution, Genetics, and Man</td>
<td>3</td>
</tr>
<tr>
<td>*Chem 101-2--General Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>Chem 160--Survey of Organic Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>Geol 101-2-3--Introduction to Environmental Geology (or Phys 111-2-3)</td>
<td>12-15</td>
</tr>
<tr>
<td>Math 116-College Algebra</td>
<td>3</td>
</tr>
<tr>
<td>Business Education Courses</td>
<td>1-2</td>
</tr>
</tbody>
</table>

*Students presenting a minor field in Chemistry should substitute Chem 121-2-3.*

**Minors may substitute Bot 265 or Gen. 300 for Bot-Zool 250.

### BUSINESS ADMINISTRATION (SECRETARIAL)

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus Ad 180 or</td>
<td></td>
</tr>
<tr>
<td>Bus Ad 181 or __Intermediate Typewriting</td>
<td>0-2</td>
</tr>
<tr>
<td>Bus Ad 182 or __Advanced Typewriting</td>
<td>0-2</td>
</tr>
<tr>
<td>Bus Ad 183--Production Typewriting</td>
<td>2</td>
</tr>
<tr>
<td>Bus Ad 184-5-4--Stenography</td>
<td>15</td>
</tr>
<tr>
<td>Bus Ad 183--Beginning Secretarial Practice</td>
<td>2</td>
</tr>
<tr>
<td>Bus Ad 194--Records Management</td>
<td>3</td>
</tr>
<tr>
<td>Bus Ad 201-2-3--Accounting Principles</td>
<td>9</td>
</tr>
<tr>
<td>Bus Ad 252--Office Machines Practice</td>
<td>2</td>
</tr>
<tr>
<td>Bus Ad 257--Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>Bus Ad 370--Electronic Information Processing</td>
<td>3</td>
</tr>
</tbody>
</table>

**Note:** Montana Vocational Certification requirement may be completed by taking Bus Ad 386 and 387 in addition to the above courses.

### BUSINESS ADMINISTRATION (NON-SECRETARIAL)

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus Ad 180 or</td>
<td></td>
</tr>
<tr>
<td>Bus Ad 181 or __Intermediate Typewriting</td>
<td>0-2</td>
</tr>
<tr>
<td>Bus Ad 182 or __Advanced Typewriting</td>
<td>0-2</td>
</tr>
<tr>
<td>Bus Ad 183--Production Typewriting</td>
<td>2</td>
</tr>
<tr>
<td>Bus Ad 185--Beginning Secretarial Practice</td>
<td>2</td>
</tr>
<tr>
<td>Bus Ad 194--Records Management</td>
<td>3</td>
</tr>
<tr>
<td>Bus Ad 201-2-3--Accounting Principles</td>
<td>9</td>
</tr>
<tr>
<td>Bus Ad 252--Office Machines Practice</td>
<td>2</td>
</tr>
<tr>
<td>Bus Ad 261--Administrative Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Bus Ad 377--Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>Bus Ad 370--Electronic Information Processing</td>
<td>3</td>
</tr>
</tbody>
</table>

**Note:** Placement in student teaching may not be possible; in this case provisional certification only will be available unless the student presents another teaching field in which student teaching can be accomplished.

**Any two quarters.**

### COMMUNICATION SKILLS

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>SpCo 110--Introduction to Systems</td>
<td>3</td>
</tr>
<tr>
<td>SpCo 112--Argumentation</td>
<td>5</td>
</tr>
<tr>
<td>SpCo 115--Introduction to Communication: Process</td>
<td>5</td>
</tr>
<tr>
<td>SpCo 116--Discussion and Small Groups</td>
<td>3</td>
</tr>
<tr>
<td>SpCo 350--General Semantics</td>
<td>3</td>
</tr>
<tr>
<td>SpCo 355--Message Composition</td>
<td>3</td>
</tr>
<tr>
<td>SpCo 360--Speech Criticism</td>
<td>2</td>
</tr>
<tr>
<td>SpCo 361--Oral Interpretation</td>
<td>3</td>
</tr>
<tr>
<td>SpCo-Educ 424--Methods of Teaching Communication Skills</td>
<td>3</td>
</tr>
<tr>
<td>SpCo 445--Advanced Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>SpCo 444--Rhetorical Theory</td>
<td>3</td>
</tr>
<tr>
<td>Eng 100--Lower Division Composition</td>
<td>3</td>
</tr>
<tr>
<td>Eng 102--Introduction to Creative Writing</td>
<td>3</td>
</tr>
<tr>
<td>Eng 100--Upper Division Composition</td>
<td>3</td>
</tr>
<tr>
<td>Eng 450--Advanced Composition</td>
<td>2</td>
</tr>
<tr>
<td>Eng 271--Structure of Modern English</td>
<td>3</td>
</tr>
<tr>
<td>Jour 370--Reporting</td>
<td>3</td>
</tr>
<tr>
<td>Jour-Educ 316--School Publications and Teaching Methods</td>
<td>3</td>
</tr>
<tr>
<td>Jour-Educ 333--Magazine Article Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

*Minors may substitute SpCo 112 for SpCo 110.

### COMPUTER SCIENCE

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 101--Introduction to Computing</td>
<td>3</td>
</tr>
<tr>
<td>CS 201--Fortran Programming</td>
<td>2</td>
</tr>
<tr>
<td>CS 210--COBOL</td>
<td>2</td>
</tr>
<tr>
<td>CS 271-2-3--Computing and Mathematics</td>
<td>9</td>
</tr>
<tr>
<td>CS 303-3--Introduction to Programming</td>
<td>9</td>
</tr>
<tr>
<td>CS 312--Systems Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CS 320--Switching Theory</td>
<td>3</td>
</tr>
<tr>
<td>CS 374--Application of Digital Computers</td>
<td>9</td>
</tr>
<tr>
<td>CS 401-2-3--Advanced Programming</td>
<td>9</td>
</tr>
<tr>
<td>CS 450--Computer Applications in Education</td>
<td>1</td>
</tr>
</tbody>
</table>

**Prereq = Math 001 (0 cr).**

**Prereq = Math 116-7 (10 cr).**

**Prereq = Math 125 (0 cr).**

**Prereq = Math 116 (5 cr).**

### DRAMA

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr 101--Introduction to the Theater</td>
<td>3</td>
</tr>
<tr>
<td>Dr 112-3--Elementary Acting</td>
<td>9</td>
</tr>
<tr>
<td>Dr 121-2-3--Stagecraft</td>
<td>12</td>
</tr>
<tr>
<td>Dr 200--Beginning Theater Workshop</td>
<td>6</td>
</tr>
<tr>
<td>Dr 203--Dramaturgy</td>
<td>9</td>
</tr>
<tr>
<td>Dr 244--Stage Makeup</td>
<td>2</td>
</tr>
<tr>
<td>Dr 251--Stage Speech</td>
<td>2</td>
</tr>
<tr>
<td>Dr 303--History of the Theater</td>
<td>3</td>
</tr>
<tr>
<td>Dr 311--Directing</td>
<td>4</td>
</tr>
<tr>
<td>Dr 469--Seminar</td>
<td>4</td>
</tr>
</tbody>
</table>

**Electives—Any Course(s) in Drama | 5 **

### EARTH SCIENCE

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geog 101--Physical Elements of Geography</td>
<td>5</td>
</tr>
<tr>
<td>Geog 201--Map Interpretation</td>
<td>3</td>
</tr>
<tr>
<td>Geog 350--Climatology</td>
<td>3</td>
</tr>
<tr>
<td>Geol 101-2--Introduction to Geology</td>
<td>8</td>
</tr>
<tr>
<td>Geol 130--Field Methods</td>
<td>3</td>
</tr>
<tr>
<td>Geol 200--General Paleontology</td>
<td>4</td>
</tr>
<tr>
<td>Geol 202--Principles of Stratigraphy</td>
<td>5</td>
</tr>
<tr>
<td>Geol 203--Regional Historical Geology</td>
<td>3</td>
</tr>
<tr>
<td>Geol 210--Introduction to Rocks and Minerals</td>
<td>4</td>
</tr>
<tr>
<td>Geol-Educ 306--Methods of Teaching Earth Science</td>
<td>3</td>
</tr>
<tr>
<td>Geol 330--Geomorphology (or Geol 370)</td>
<td>3</td>
</tr>
<tr>
<td>*For 210--Forest Soils</td>
<td>4</td>
</tr>
<tr>
<td>Gen 300--Conservation of Natural and Human Resources</td>
<td>3</td>
</tr>
<tr>
<td>Astronomy 131--Elementary Astronomy</td>
<td>3</td>
</tr>
<tr>
<td>Electives—From Courses Listed Below</td>
<td>3</td>
</tr>
<tr>
<td>Geol 103--Environmental Geology</td>
<td>4</td>
</tr>
</tbody>
</table>

**Phys 115--General Physics | 3 cr.**

**Bot-Zool 250--Basic Concepts | 3 cr.**

### CHEMISTRY

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 121-2-3--College Chemistry</td>
<td>15</td>
</tr>
<tr>
<td>Chem 245--Quantitative Analysis</td>
<td>5</td>
</tr>
<tr>
<td>Chem 261-2--Organic Chemistry</td>
<td>10</td>
</tr>
<tr>
<td>Chem-Educ 329--Methods of Teaching High School Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>*Chem 370--Survey of Physical Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>Chem 482--Physical Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>Chem 481--Elementary Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>Electives--Upper Division Chemistry Courses</td>
<td>3</td>
</tr>
</tbody>
</table>

**Prereq = Phys 112-2-3 (15 cr.); Math 116-7 (10 cr.)**

### ECONOMICS

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ 201--Introduction to Economics</td>
<td>3</td>
</tr>
<tr>
<td>Econ 202--Principles of Economics</td>
<td>3</td>
</tr>
<tr>
<td>Econ 203--Economics of Business</td>
<td>3</td>
</tr>
<tr>
<td>Econ 204--International Economics</td>
<td>3</td>
</tr>
<tr>
<td>Econ 205--Money and Banking</td>
<td>4</td>
</tr>
<tr>
<td>Econ 206--Microeconomics</td>
<td>4</td>
</tr>
</tbody>
</table>

**Econ 207--Macroeconomics | 4 **

### GENERAL SCIENCE

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geol 101-2--Introduction to Geology</td>
<td>8</td>
</tr>
<tr>
<td>Geol 130--Field Methods</td>
<td>3</td>
</tr>
<tr>
<td>Geol 200--General Paleontology</td>
<td>4</td>
</tr>
<tr>
<td>Geol-Educ 306--Methods of Teaching Earth Science</td>
<td>3</td>
</tr>
<tr>
<td>Geol 330--Geomorphology (or Geol 370)</td>
<td>3</td>
</tr>
<tr>
<td>*For 210--Forest Soils</td>
<td>4</td>
</tr>
<tr>
<td>Gen 300--Conservation of Natural and Human Resources</td>
<td>3</td>
</tr>
<tr>
<td>Astronomy 131--Elementary Astronomy</td>
<td>3</td>
</tr>
<tr>
<td>Electives—From Courses Listed Below</td>
<td>3</td>
</tr>
<tr>
<td>Geol 103--Environmental Geology</td>
<td>4</td>
</tr>
</tbody>
</table>

**Phys 115--General Physics | 3 cr.**

**Bot-Zool 250--Basic Concepts | 3 cr.**

### PHYSICS

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geol 302--Field Geol. Nat. Sc.</td>
<td>3</td>
</tr>
<tr>
<td>Geol 330--Structural Geology</td>
<td>4 cr.</td>
</tr>
<tr>
<td>Geol 408--Intro. Verteb. Paleo.</td>
<td>4 cr.</td>
</tr>
</tbody>
</table>
| **Phys 450--Intro. To Physysics | 3 cr.**

**Prereq = Chem 101-2 (8 cr).**

**Prereq = Phys 111 (5 cr.); Math 116-7 (10 cr).**

**Prereq = Math 300 (4 cr).**

**Prereq = Math 116-7 (15 cr.); Phys 111 and 112 (10 cr.).**
### ECONOMICS

**Electives-Courses in English**

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ 201-2-3—Principles of Economics</td>
<td>9 (63 credits)</td>
</tr>
<tr>
<td>Econ 301—Money and Banking</td>
<td>4</td>
</tr>
<tr>
<td>Econ 304—Public Finance</td>
<td>4</td>
</tr>
<tr>
<td>Econ 411-2-3—Intermediate Economic Analysis</td>
<td>12</td>
</tr>
<tr>
<td>Econ 331—Labor Economics</td>
<td>3</td>
</tr>
<tr>
<td>Econ 331—Introduction to International Economics</td>
<td>3</td>
</tr>
<tr>
<td>Educ 428—Methods of Teaching Social Studies in Secondary Schools</td>
<td>3</td>
</tr>
</tbody>
</table>

*Electives—Any Courses in Economics* 14

**Placement in student teaching may not be possible; in this case provisional certification only will be available unless the student presents another teaching area in which student teaching can be accomplished.

### ENGLISH

**ENGLISH—BROAD FIELDS** *(Major Only)*

Does not qualify for teaching Drama, Journalism, or Speech

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 161-2-3—World Literature</td>
<td>9</td>
</tr>
<tr>
<td>Engl 200—Applied Literary Criticism</td>
<td>3</td>
</tr>
<tr>
<td><em>Engl 211-2-3—Introduction to Major British Writers</em> 3 or 6</td>
<td>3 or 6</td>
</tr>
<tr>
<td><em>Engl 231-2-3—Introduction to Major American Writers</em> 6 or 3</td>
<td>6 or 3</td>
</tr>
<tr>
<td>Engl 345—Shakespeare (or 343)</td>
<td>3</td>
</tr>
<tr>
<td>Engl 371—The Structure of Modern English</td>
<td>3</td>
</tr>
<tr>
<td>Engl-Educ 382—Methods of Teaching English</td>
<td>3</td>
</tr>
<tr>
<td>Engl 490—Advanced Composition</td>
<td>3</td>
</tr>
<tr>
<td>Engl 482—Literature for the High School Teacher</td>
<td>3</td>
</tr>
<tr>
<td>SpCo 111—Introduction to Public Speaking</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives—Courses in English**

*Students are expected to take two quarters of one sequence and one quarter of the other sequence from Engl 211-212-213 and 231-232.*

**Among the elective courses there must be at least one upper division course in American literature and one upper division course in British literature. English 399 and other courses in General Literature may also be taken. Additional electives from the related fields of Speech Communication, Drama, and Journalism are strongly recommended. English 100 and 300 may not be included in the major or the minor.

**FRENCH** *(Major Only)*

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fr 101-2-3—Elementary French</td>
<td>15 (60 credits)</td>
</tr>
<tr>
<td><strong>Fr 201-2-3—Intermediate French</strong></td>
<td>12</td>
</tr>
<tr>
<td>Fr 301—Phonetics</td>
<td>3</td>
</tr>
<tr>
<td>Fr 303—Oral and Written Expression</td>
<td>3</td>
</tr>
<tr>
<td>Fr 305—French Civilization and Culture</td>
<td>3</td>
</tr>
<tr>
<td>Fr 405—Advanced Composition</td>
<td>3</td>
</tr>
<tr>
<td>Fr 431—Survey of Modern French Literature</td>
<td>3</td>
</tr>
<tr>
<td><strong>FL-Educ 306—Methods of Teaching Foreign Languages</strong></td>
<td>3</td>
</tr>
<tr>
<td>Electives—Any Upper Division French Courses</td>
<td>15</td>
</tr>
</tbody>
</table>

*Foreign Language Department recommendation re student’s proficiency is prerequisite to student teaching.*

**Credits will be allowed for exempted courses.**

*Must be taken in the junior year.*

*Minors may substitute Fr. 405.

**Must include a minimum of 6 credits in period courses numbered from 321 to 335, inclusive.**

### GENERAL SCIENCE

**ENGLISH-BROAD FIELDS** *(Major Only)*

Does not qualify for teaching Drama, Journalism, or Speech

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 161-2-3—World Literature</td>
<td>9</td>
</tr>
<tr>
<td>Engl 200—Applied Literary Criticism</td>
<td>3</td>
</tr>
<tr>
<td><em>Engl 211-2-3—Introduction to Major British Writers</em> 3 or 6</td>
<td>3 or 6</td>
</tr>
<tr>
<td><em>Engl 231-2-3—Introduction to Major American Writers</em> 6 or 3</td>
<td>6 or 3</td>
</tr>
<tr>
<td>Engl 345—Shakespeare (or 343)</td>
<td>3</td>
</tr>
<tr>
<td>Engl 371—The Structure of Modern English</td>
<td>3</td>
</tr>
<tr>
<td>Engl-Educ 382—Methods of Teaching English</td>
<td>3</td>
</tr>
<tr>
<td>Engl 490—Advanced Composition</td>
<td>3</td>
</tr>
<tr>
<td>Engl 482—Literature for the High School Teacher</td>
<td>3</td>
</tr>
<tr>
<td>SpCo 111—Introduction to Public Speaking</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives—Courses in English**

*Students are expected to take two quarters of one sequence and one quarter of the other sequence from Engl 211-212-213 and 231-232.*

**Among the elective courses there must be at least one upper division course in American literature and one upper division course in British literature. English 399 and other courses in General Literature may also be taken. Additional electives from the related fields of Speech Communication, Drama, and Journalism are strongly recommended. English 100 and 300 may not be included in the major or the minor.

### GEOGRAPHY

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geog 101—Physical Elements of Geography</td>
<td>5</td>
</tr>
<tr>
<td>Geog 102—Introductory Human Geography</td>
<td>5</td>
</tr>
<tr>
<td>Geog 101—Introduction to Geography</td>
<td>5</td>
</tr>
<tr>
<td>Geog 103—Cultural Geography</td>
<td>5</td>
</tr>
<tr>
<td>Geog 104—Urban Geography</td>
<td>5</td>
</tr>
<tr>
<td>Geog 105—Landform Analysis</td>
<td>5</td>
</tr>
<tr>
<td>Geog 413—Population and Resource Geography</td>
<td>5</td>
</tr>
<tr>
<td>Educ 450—Methods of Teaching Secondary Science</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives—Courses from Social Science and Physical Science Areas**

*Element in student teaching may not be possible; in this case provisional certification only will be available unless the student presents another teaching area in which student teaching can be accomplished.

**18 credits should be selected from one department in the social science area or from one department in the physical science area; the remaining 9 credits should be from one department in the other area.

### GERMAN

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ger 101-2-3—Elementary German</td>
<td>15</td>
</tr>
<tr>
<td>Ger 201-2-3—Intermediate German</td>
<td>12</td>
</tr>
<tr>
<td>Ger 301-2—Oral and Written Expression</td>
<td>6</td>
</tr>
<tr>
<td>Ger 300—German Civilization and Culture</td>
<td>6</td>
</tr>
<tr>
<td>Ger 311-2—Survey of German Literature</td>
<td>3</td>
</tr>
<tr>
<td>Ger 401—Applied Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>Ger 405—Advanced Composition</td>
<td>3</td>
</tr>
<tr>
<td>FL-Educ 390—Methods of Teaching Foreign Languages</td>
<td>3</td>
</tr>
<tr>
<td>Electives—Any Upper Division German Courses</td>
<td>9</td>
</tr>
</tbody>
</table>

*Foreign Language Department recommendation re student’s proficiency is prerequisite to student teaching.*

**Credits will be allowed for exempted courses.**

*Must be taken in the junior year.*

*Minors may substitute Ger 402.

### HEALTH, PHYSICAL EDUCATION AND RECREATION

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPER 185—Concepts in Physical Education</td>
<td>5</td>
</tr>
<tr>
<td>HPER 200—First Aid (or 390)</td>
<td>2 or 3</td>
</tr>
<tr>
<td>HPER 200—History and Principles of Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>HPER 315-220—Professional Activities</td>
<td>3</td>
</tr>
<tr>
<td>HPER 235—Care and Prevention of Athletic Injuries</td>
<td>3</td>
</tr>
</tbody>
</table>

**HPER 291—Introduction to Recreation** 3

**HPER 290—Human Anatomy** 3

**HPER-Educ 301—Methods of Teaching Physical Education Secondary** 2

**HPER 305—Problems in Health, Physical Education and Recreation** 1

**HPER 339—Teaching Physical Education in Elementary Schools** 3

**HPER 348—The High School Intramural Program** 2

**HPER 358—Organizations and Administration of Physical Education** 3

**HPER-Educ 378—The School Health Program** 3

**HPER-Educ 376—Methods in Teaching Health** 3

**HPER 394—Applied Anatomy and Kinesiology** 5

**HPER 398—Preventive and Corrective Physical Education** 3

**HPER 405—Senior Seminar** 1

**HPER 465—Measurement and Evaluation** 5

**HPER 476—Physiology of Exercise** 3
**HEALTH, PHYSICAL EDUCATION AND RECREATION** (Continued)

<table>
<thead>
<tr>
<th>Course</th>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Major</td>
<td>(62 credits)</td>
<td>(40 credits)</td>
</tr>
<tr>
<td>For Women:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPER 223—Officiating Basketball</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>HPER-Educ 305—Methods of Teaching P.E.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Secondary Level (or 305)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPER 321—Dance Methods</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>For Men:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPER 324—Dance Methods</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Electives—Courses in HPER</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>*Qualifies for K-12 certification endorsement.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Prerequisites to courses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note: HPER 115-120 must be completed. These courses satisfy the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University requirement, but neither these nor HPER 100 will be</td>
<td></td>
<td></td>
</tr>
<tr>
<td>counted in credits applying toward the major or minor teaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>field.</td>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>HISTORY-POLITICAL SCIENCE</strong></th>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Major</td>
<td>(53 credits)</td>
<td>(30 credits)</td>
</tr>
<tr>
<td>H Hist 104-5-6—European Civilization</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>H Hist 251-2—United States History</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Pols 201—American Government</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Pols Sci 221—Introduction to International Relations</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Educ 428—Methods of Teaching Social Studies in Secondary Schools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Electives—Courses in History</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>*Must include at least 12 credits of upper division courses.</td>
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<table>
<thead>
<tr>
<th><strong>HOME ECONOMICS</strong></th>
<th>Major Field</th>
<th>Minor Field</th>
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</thead>
<tbody>
<tr>
<td>*Major</td>
<td>(94 credits)</td>
<td>(49 credits)</td>
</tr>
<tr>
<td>H Ec 102—Personal and Family Living</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 106—Home Management in Theory and Practice</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>H Ec 155—Textile Selection</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 158—Introducing Clothing Problems</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 159—Clothing Problems</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H Ec 210—Household Equipment</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H Ec 241—Principles of Food Preparation</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H Ec 295—Food Preparation Laboratory</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H Ec 246—Nutrition</td>
<td>2-3</td>
<td></td>
</tr>
<tr>
<td>*H Ec 249—Child Development</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>*H Ec 302—Home Planning</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H Ec 303—Interior Design and Furnishings</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H Ec 305—Meal Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H Ec 307—Family Finance</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H Ec 310—Home Living Center</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H Ec 346—Family Nutrition</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H Ec 355—Advanced Clothing Problems</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H Ec 397—Problems in Child Development</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H Ec 421—Teaching Home Economics</td>
<td>3</td>
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<tr>
<td>H Ec 490—Seminar in Family Relationships</td>
<td>1</td>
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<tr>
<td>H Ec 500—Research Seminar</td>
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<tr>
<td>*Prereq: Chem 101 (4 cr.)</td>
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</tr>
<tr>
<td>*Prereq: H Ec 106 (5 cr.)</td>
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<td></td>
</tr>
<tr>
<td>*Prereq: Art 125 (2 cr.)</td>
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<table>
<thead>
<tr>
<th><strong>ITALIAN</strong></th>
<th>Major Field</th>
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<tbody>
<tr>
<td>*Major</td>
<td>(60 credits)</td>
<td>(46 credits)</td>
</tr>
<tr>
<td>Ital 101-2-3—Elementary Italian</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Ital 201-3-4—Intermediate Italian</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Ital 301-2—Oral and Written Expression</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Ital 303—Italian Civilization and Culture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ital 311-2-3—Survey of Italian Literature</td>
<td></td>
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<tr>
<td>Ital 401—Applied Linguistics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Ital 492—Advanced Composition</td>
<td>3</td>
<td></td>
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<tr>
<td>§FL—Educ 290—Methods of Teaching</td>
<td>3</td>
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<tr>
<td>Foreign Languages</td>
<td>3</td>
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<tr>
<td>Electives—Any Upper Division Italian Courses</td>
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<td></td>
</tr>
<tr>
<td>*Foreign Language Department recommendation re student's proficiency</td>
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<tr>
<td>*Must be taken in the junior year.</td>
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**JOURNALISM** (Continued)

<table>
<thead>
<tr>
<th>Course</th>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Major</td>
<td>(48 credits)</td>
<td>(30 credits)</td>
</tr>
<tr>
<td>Jour 100—Social Role of Mass Media</td>
<td>1</td>
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<tr>
<td>Jour 196—Current Affairs</td>
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<td></td>
</tr>
<tr>
<td>Jour 200—Elementary Photography</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Jour 270—Reporting</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Jour 290—History and Principles of Journalism</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Jour 434—School Publications and Teaching Methods</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Jour 395—Principles of Advertising</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Jour 381—Advertising Sales</td>
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</table>

**JOURNALISM—Continued**

<table>
<thead>
<tr>
<th>Course</th>
<th>Major Field</th>
<th>Minor Field</th>
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</thead>
<tbody>
<tr>
<td>*Major</td>
<td>(48 credits)</td>
<td>(30 credits)</td>
</tr>
<tr>
<td>Jour 371—Advanced Reporting</td>
<td>2</td>
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<tr>
<td>Jour 372—Specialized Reporting</td>
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<tr>
<td>Jour 380—News Editing</td>
<td>2</td>
<td></td>
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<tr>
<td>Jour 390—Public Opinion</td>
<td>2</td>
<td></td>
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<tr>
<td>Jour 391—The Law of Journalism</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Jour 470—Reporting Public Affairs</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Jour 471—Editorial Writing and Interpretation</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Jour 498—Media in Modern Society</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TVT 145—Introduction to Radio and Television</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>*Placement in student teaching may not be possible; in this case</td>
<td></td>
<td></td>
</tr>
<tr>
<td>provisional certification only will be available unless the student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>presents another teaching area in which student teaching can be</td>
<td></td>
<td></td>
</tr>
<tr>
<td>accomplished.</td>
<td></td>
<td></td>
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**LATIN**

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Major</td>
<td>(48 credits)</td>
</tr>
<tr>
<td>Ital 101-2-3—Elementary Latin</td>
<td>15</td>
</tr>
<tr>
<td>Ital 211-2-3—Latin Readings</td>
<td>11</td>
</tr>
<tr>
<td>Ital 300—Major Latin Writers</td>
<td>22</td>
</tr>
<tr>
<td>*Major</td>
<td>(48 credits)</td>
</tr>
<tr>
<td>Ital 123—Comparative Literature</td>
<td>2</td>
</tr>
<tr>
<td>Ital 222—Comparative Literature</td>
<td>3</td>
</tr>
<tr>
<td>Ital 323—Introduction to Algebraic Structures</td>
<td>6</td>
</tr>
<tr>
<td>*Major</td>
<td>(48 credits)</td>
</tr>
<tr>
<td>Ital 323—Introduction to Algebraic Structures</td>
<td>6</td>
</tr>
<tr>
<td>*Major</td>
<td>(48 credits)</td>
</tr>
<tr>
<td>Ital 323—Introduction to Algebraic Structures</td>
<td>6</td>
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**MATHEMATICS**

<table>
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<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Major</td>
<td>(39-41 credits)</td>
</tr>
<tr>
<td>Math 130 or —Theory of Arithmetic</td>
<td>6</td>
</tr>
<tr>
<td>Math 101-2—Analytic Geometry and Calculus</td>
<td>10</td>
</tr>
<tr>
<td>Math 152—Calculus I—Calculus II</td>
<td>10</td>
</tr>
<tr>
<td>Math 133—Linear Algebra</td>
<td>5</td>
</tr>
<tr>
<td>Math 220—or —Intuitive Geometry</td>
<td>4</td>
</tr>
<tr>
<td>Math 251-2—Calculus III and IV</td>
<td>10</td>
</tr>
<tr>
<td>Math 250-3—Mathematics for Teachers</td>
<td>9</td>
</tr>
<tr>
<td>Math 323—Introductory Algebra</td>
<td></td>
</tr>
<tr>
<td>*Electives—Selected from Math 301, 304, 305</td>
<td>3</td>
</tr>
<tr>
<td>*Electives—Selected from Math 320, 321, 323</td>
<td>3</td>
</tr>
<tr>
<td>*Electives—Selected from Math 125, 341, 344, 347 5-3</td>
<td>3-5</td>
</tr>
<tr>
<td>*The required credits in Mathematics are Math 001, 116, 117 or</td>
<td></td>
</tr>
<tr>
<td>121; or exemption by examination.</td>
<td></td>
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**MUSIC**

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Minor Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Major</td>
<td>(60 credits)</td>
</tr>
<tr>
<td>Mus 100—Performance Minor</td>
<td>4</td>
</tr>
<tr>
<td>Mus 111-2-3—Theory I</td>
<td>6</td>
</tr>
<tr>
<td>Mus 125—Introduction to Music Literature</td>
<td>4</td>
</tr>
<tr>
<td>Mus 138-6—Aural Perception I</td>
<td>4</td>
</tr>
<tr>
<td>Mus 201, 401—Performance Major</td>
<td>7</td>
</tr>
<tr>
<td>Mus 211-2-3—Theory II</td>
<td>6</td>
</tr>
<tr>
<td>Mus 227-5-6—Aural Perception II</td>
<td>6</td>
</tr>
<tr>
<td>Mus 253—Recording and Sound</td>
<td>2</td>
</tr>
<tr>
<td>Mus 320—Piano Meth. &amp; Mater.</td>
<td>3</td>
</tr>
<tr>
<td>(Major only)</td>
<td></td>
</tr>
<tr>
<td>Mus 322-1—School Music</td>
<td>2</td>
</tr>
</tbody>
</table>

*All students preparing Major and Minor teaching fields in Music must demonstrate piano ability equivalent to 3 quarters of piano study (private or in class). Other Music courses may be substituted with the approval of the Chairman of the Music Department.

*Qualifies for K-12 certification endorsement.*
**Russ 101-2-3—Elementary Russian**

**ENGLISH**

By the beginning of his junior year the student should have decided definitely which of the schedules he is to follow.

**PREREQUISITES:** Approximately 45 credits in Mathematics courses

*Psychology*

Major

- Field

- Field

**Psych 110—Introduction to Psychology**

(50 credits) (35 credits)

5

5

**Psych 111—Introduction to Experimental Psychology**

5

5

**Psych 129—Child and Adolescent Psychology**

5

5

**Psych 240—Social Psychology**

5

5

**Psych 310—Sensory Process and Perception**

5

5

**Psych 311—Learning**

5

5

**Psych 361—Abnormal Psychology**

5

5

Electives—Any Courses in Psychology

15


*Russian*

Major

- Field

- Field

**Russ 101-2-3—Elementary Russian**

(60 credits) (45 credits)

15

15

**Russ 201-2-3—Intermediate Russian**

15

15

**Russ 201—Applied Linguistics**

3

3

**Russ 301—Russian Composition and Conversation**

3

3

**Russ 311-2-3—Survey of Russian Literature**

9

9

**FL-Educ 390—Methods of Teaching Foreign Languages**

3

3

Electives—Any Upper Division Russian Courses

15


*Social Sciences—Broad Fields (Major Only)*

Does not qualify for teaching Economics, Geography, or Sociology

Major

Field

(75 credits)

Econ 201-2-3—Principles of Economics

9

Geog 331—Political Geography

3

Geog 335—Cultural Geography

3

Hist 104-105-106—European Civilization

12

Hist 201-2—United States History

8

Pol Sci 201-2—American Government

10

Soc 101—Introductory Sociology

5

Educ 428—Methods of Teaching Social Studies in Secondary Schools

5

Electives—Upper Division Courses in Anthropology, Economics, Geography, History, Political Science, Sociology

22

*Must include at least two courses in history, one in economics, one in geography, and one in sociology.

**Sociology**

Major

- Field

- Field

(48 credits) (35 credits)

Anth 152—Man and His Culture (or 153)

5

5

Soc 101—Introductory Sociology

5

5

Soc 102—American Society

5

5

Soc 201—Social Science Methods

5

5

Soc 207—Introduction to Social Change

5

5

Soc 208—Individual and Society

5

5

Soc 307—Socialization

3

3

Soc 204—Introduction to Complex Organizations

4

4

Soc 310—Development of Social Thought

5

5

Educ 428—Methods of Teaching Social Studies in Secondary Schools

3

3

Electives—Upper Division Sociology Courses

3


**Spanish**

Major

- Field

- Field

(65 credits) (45 credits)

**SpCo 110—Introduction to Systems of Communication**

5

5

**SpCo 111—Introduction to Public Speaking**

5

5

**SpCo 112—Argumentation**

5

5

**SpCo 322—Introduction to Communication: Phonology (or 119-9)**

5

5

**SpCo 294—Introduction to Communication: Process**

5

5

**SpCo 314—Discussion and Small Groups (or 371)**

3

3

**SPA 330—Introduction to Speech Pathology**

3

3

**SpCo 335—General Semantics**

3

3

**SpCo 335—Message Composition**

3

3

**SpCo 361—Oral Interpretation**

3

3

**SpCo-Educ 428—Teaching Speech in the Secondary School**

3

3

**SpCo 430—Business and Professional Interviewing**

3

3

**SpCo 441—Rhetorical Theory**

3

3

**SpCo 445—History of American Public Address (or 446)**

3

3

**SpCo 462—Directing the Forensic Program**

3

3


**SPEECH**

Major

Field

(55 credits)

SpCo 110—Introduction to Systems of Communication

5

SpCo 111—Introduction to Public Speaking

5

SpCo 322—Introduction to Communication: Phonology (or 119-9)

5

SpCo 294—Introduction to Communication: Process

5

SpCo 314—Discussion and Small Groups (or 371)

3

SPA 330—Introduction to Speech Pathology

3

SpCo 335—General Semantics

3

SpCo 335—Message Composition

3

SpCo 361—Oral Interpretation

3

SpCo-Educ 428—Teaching Speech in the Secondary School

3

SpCo 430—Business and Professional Interviewing

3

SpCo 441—Rhetorical Theory

3

SpCo 445—History of American Public Address (or 446)

3

SpCo 462—Directing the Forensic Program

3


**ENGLISH**

Students study English for a variety of reasons. Some have practical purposes: they realize the need for greater clearness, precision and ease in their use of English. Some are motivated by a general cultural interest: they hope, through a study of literature to clarify and enrich their knowledge of themselves and their world. Others combine cultural purposes with specific vocational or professional objectives, such as professional writing or teaching. Those who choose English as their major usually fall into one of three groups:

**SCHEDULE A:** Potential critics, scholars, and college teachers, who can increase their critical insight by study of the great literary works of the past and present, and can prepare themselves for graduate work by gaining an understanding of the methods and materials of literary study.

**SCHEDULE B:** Potential creative writers, whose powers can be tested and directed in an environment favorable to the development of their individual abilities in the writing of poems, short stories, novels, and plays.

**SCHEDULE C:** Prospective teachers in high school, who need a program which will provide them with an adequate background in their subject matter as well as required course work for secondary school certification.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN ENGLISH.** In addition to the general requirements for graduation listed earlier in the catalog, the student seeking the degree of Bachelor of Arts with a major in English must complete a minimum of 50 credits in the major but not more than 66 credits in the department. English 100 and 300 do not count toward the English major. The required courses are listed in the schedules given below.
All students majoring or minoring in English, whether their degrees are taken in the department of English or the School of Education, will be required to take the basic core curriculum in English. Schedules A, B, and C presume such a core curriculum and build from that.

CORE CURRICULUM

I. English majors must satisfy the departmental composition requirement. All prospective English majors are expected to take, in the freshman year, English 161, 162, 163—World Literature.

II. All students are expected to take, in addition English 200 in the sophomore year; two quarters in one sequence and one in the other from English 211-212-213, and 231-232-233; English 342 or 343; 3 credits from English 360 or 371 or 372.

III. The foreign language requirement listed earlier in the catalog must be satisfied. Courses in Art, History, Philosophy, Psychology, and the Social Sciences are recommended.

SCHEDULE A: LITERATURE

Students who hope to do graduate study in English should supplement the above courses with the following required minimum.

English 485 (Chaucer); 3 credits from 491-492-493. The remaining credits required for completion of the minimum 50 may be selected from courses in General Literature; English, and American Literature numbered above 300. The maximum of courses up to 60 credits may include 401-402-403; 440; and 441.

SCHEDULE B: CREATIVE WRITING

Students whose major interest is the writing of fiction and poetry should supplement the core courses with the following minimum. This schedule is aimed at helping the student toward individual expression by giving him guided practice in writing, a working knowledge of modern techniques, and a foundation in critical self-appraisal.

REQUIREMENTS: English 301, 302, 303 (3 credits from 306 may be substituted for one quarter in this sequence); 401, 402, 403; 3 credits from 440, 441, 442; 3 credits from 491, 492, 493. The additional credits allowed up to a maximum of 68 may be taken from courses in General literature; and English and American literature and writing numbered above 300.

SCHEDULE C: TEACHING

(For teacher certification requirements, see Education)

Students planning to teach English in high school should supplement the core courses with one of the following options:

Option 1

English 371, 382, 482; Speech 111.

Electives: Other electives may be chosen from courses in the department of English, from courses in General Literature and from the Related Fields. Among electives there must be at least one advanced course in American literature and one advanced course in British Literature. Additional electives in Drama, Speech, and Journalism are strongly recommended.

For certification, a teaching minor in another field is required.

Option 2

(Broad Fields)

English 371, 382, 482; Speech 111.

English electives: 18 credits (must include at least one advanced course in British Literature, one advanced course in American Literature, and may include courses in General Literature, and English 360.)

30 credits of electives chosen from the following Related Fields: Drama, Journalism, Speech.

Students following Option 2 must take a minimum of 45 credits in English and 30 credits in Related Fields, as defined above. The program qualifies the student for the Montana State teaching certificate in English (Broad Fields). This certificate does not require a teaching minor.

Option 3

(Extended major for single endorsement)

English 371, 382, 482; Speech 111. Sixty credits in English are required. The program qualifies the student for Montana state teaching certification in English only. A teaching minor is not required.

GRADUATE WORK. See Graduate School Bulletin.

COMPOSITION

FOR UNDERGRADUATES

For Explanation see Course Descriptions (Index)

English composition may be required selectively by schools or departments for any or all of their majors.

Students who do not achieve acceptable scores on the English section of the ACT examination must take English 001, Preparatory Composition, and receive a "pass" grade before they may enter English 100, 300 or 450. The English Department reserves the right to ask a student to take a less advanced course if it is apparent that he cannot write at the level of a more advanced course.

Courses 300 and 450 are open to students with adequate ability in composition, regardless of their class level.

001 PREPARATORY COMPOSITION 3. A remedial course with emphasis on problems of basic mechanics (usage, punctuation, spelling, etc), sentence structure, and simple organization. (Credit not allowed toward a degree.)

100 LOWER DIVISION COMPOSITION 3. A course designed to help students learn to write accurately and logically about the subjects they already understand.

300 UPPER DIVISION COMPOSITION 3. For the generally competent student writer already pursuing an academic major in the University. Emphasis upon those kinds of writing-such as reports, reviews, criticisms, informal essays and examinations-which are normal in academic competition among upper division students. (Junior standing not required to enter this course if the student is properly prepared.)

450 ADVANCED COMPOSITION 3. Concentration upon complex subjects and ideas, especially within a student’s own professional area. (Senior standing is not required to enter this course if the student’s ability in composition is adequate.)

CREATIVE WRITING

FOR UNDERGRADUATES

202 INTRODUCTION TO CREATIVE WRITING 3. Practice in creative writing at the introductory level.

301-302-303 CREATIVE WRITING: FICTION 3 prereq 202 or c/i. Enter any quarter.

306 THE WRITING OF DRAMA. (See Drama.)

313-314-315 CREATIVE WRITING: POETRY 3 prereq 202 or c/i. Enter any quarter.

FOR GRADUATES AND UNDERGRADUATES

401-402-403 ADVANCED CREATIVE WRITING: FICTION 3 prereq 301-302-303 and c/i. Enter any quarter.


440 TECHNIQUES OF MODERN FICTION 3. Intensive reading of several contemporary prose writers. Primarily for advanced students in creative writing but open to all English majors.

444 TECHNIQUES OF MODERN POETRY 3. Intensive reading of several contemporary poets. Primarily for advanced students in creative writing, but open to all English majors.

442 TECHNIQUES OF MODERN DRAMA. (See Drama 491.)

495 INDEPENDENT STUDIES 3 R-9. Special projects in particular areas of literature and creative writing.

FOR GRADUATES

510 FICTION WORKSHOP V R-15 c/l

511 POETRY WORKSHOP V R-15 c/l

512 DRAMA WORKSHOP. (See Drama 541.)

699 THESIS V R-6 to 9.

LINGUISTICS

FOR UNDERGRADUATES AND GRADUATES

360 INTRODUCTION TO LINGUISTICS 3. An introduction to the science of modern linguistics and to the nature of language.

371 THE STRUCTURE OF MODERN ENGLISH 3. Phonological and grammatical structure from a modern linguistic point of view.

372 THE HISTORY OF THE ENGLISH LANGUAGE 3. The development of English phonology, grammar, and vocabulary from the Old English period to the present.

373 OLD ENGLISH 3. An introduction to the Old English language and literature.


496 THE TEACHING OF ENGLISH AS A FOREIGN LANGUAGE 3 req English 360 or 371 or c/i. The application of principles of modern linguistics to the problems of teaching English as a foreign language. Will include a contrastive study of English and at least one other language.

497 SEMINAR: PROBLEMS IN ENGLISH LINGUISTICS 3 prereq English 360 or 371 or c/i. Subjects vary: applications of linguistics, dialectology, stylistics, phonemics and morphemics, theories or grammar.
TEACHER TRAINING
FOR UNDERGRADUATES

482 LITERATURE FOR THE HIGH SCHOOL TEACHER 3. Open to seniors only. The literature usually taught in grades 7 through 12, with emphasis on those selections of interest to the student.

FOR UNDERGRADUATES AND GRADUATES

302 METHODS OF TEACHING ENGLISH 3. Offered only during Spring Quarter. Students are expected to take it before teaching practicum. Objectives, materials and organization of the curriculum from grades 7 to 12; observation of expert teachers; some practice in teaching and correcting of student themes. Does not count in scheduled hours. A credit is not allowed for this course and the identical course Educ 382.

FOR GRADUATES

506 TEACHER TRAINING WORKSHOP V R-10 prereq teaching experience and c/l.

LITERATURE
FOR UNDERGRADUATES

101 INTRODUCTION TO THE READING OF LITERATURE 3. Learning to read various types of literature for understanding and pleasure. (Not allowed toward a degree in English.)


200 APPLIED LITERARY CRITICISM 3. Limited to English majors. Application of literary methods and methods of literary criticism to selected examples of poetry, drama, and fiction.

211-212-213 INTRODUCTION TO MAJOR BRITISH WRITERS 3. Enter any quarter. A student with 9 credits of British Literature cannot take this course. (211) Chaucer through Milton. (212) Dryden through Keats. (213) Tennyson to the present.


FOR UNDERGRADUATES AND GRADUATES


334 THE SHORT STORY 3.

341 TUDOR AND JACOBEAN DRAMA 3 prereq 9 credits of Literature. Representative plays from everyman through Ford and Shakespeare, plus a few early plays of Shakespeare.

342-343 SHAKESPEARE 3 prereq 9 credits of Literature. Enter any quarter. (342) Intensive reading of three of Shakespeare’s plays, one of which will be Hamlet. (343) Extensive reading of Shakespeare’s plays.

344 THEORIES OF DRAMA 3 prereq 1 quarter of 307-308-309. The critical literature from Aristotle to contemporary criticism and the reading of representative plays from Aeschylus to the modern dramatists.

373 OLD ENGLISH 3. Phonological and grammatical structure, simple readings in the literature of the period. (See listing under Linguistics.)

396 BRITISH LITERATURE: SIXTEENTH CENTURY 3 prereq 9 credits of literature. May include both prose and poetry, but emphasis will be on the "new" poetry of Spenser, Sidney, Marlowe, and the nondramatic poetry of Shakespeare.

398 BRITISH LITERATURE: SEVENTEENTH CENTURY. PROSE TO 1660 3 prereq 9 credits of literature. Restricted to metaphysical poetry beginning with Donne, and classical poetry beginning with Jonson, and their interrelationship as seen in poets like Carew and Marvell

399 BRITISH LITERATURE: RESTORATION 3 prereq 9 credits of literature. The major writers from 1660 to 1700 with emphasis upon Dryden.

400 BRITISH LITERATURE: EARLY EIGHTEENTH CENTURY 3 prereq 9 credits of literature. The major Neo-Augustan poets and prose writers, with emphasis upon Defoe, Swift and Pope.

401 BRITISH LITERATURE: LATE EIGHTEENTH CENTURY 3 prereq 9 credits of literature. The pre-Romantic poets and prose writers, with emphasis upon Gray, Johnson, and Fielding.

402 BRITISH LITERATURE: EARLY NINETEENTH CENTURY 3 prereq 9 credits of literature. Principal focus on the major Romantic poets: Blake, Wordsworth, Coleridge, Shelley, Byron, Keats.

403 BRITISH LITERATURE: MIDDLE AND LATE NINETEENTH CENTURY 3 prereq 6 credits of literature. Major figures of the Victorian period: novelists (Dickens through Conrad), poets (Tennyson, Browning, Arnold, Hopkins), and essayists (Carlyle, Mill, Newman, Ruskin.)

405-406 BRITISH LITERATURE: TWENTIETH CENTURY 3 prereq 12 credits of literature. Enter either quarter. Major figures in prose and verse.

408 CONTEMPORARY LITERATURE 3 prereq 12 credits of literature. Representative British, American and continental writers.

409 ADVANCED LITERARY STUDIES 3 R-9 prereq 12 credits in Literature and c/l. Content varies.

411 MAJOR WRITERS 3 R prereq 12 credits of Literature. Study in depth of one of the world’s major writers.

422-424-425 POETRY 3 prereq 9 credits of Literature. A chronological survey, with emphasis on close reading of representative works by major writers.

431 PROBLEMS IN AMERICAN LITERATURE 3 R-6 prereq 12 credits in Literature. Special genres, figures, and intellectual currents studied in depth.

483 BRITISH LITERATURE: MIDDLE ENGLISH (See listing under Linguistics.)

484 BRITISH LITERATURE: MEDIEVAL 3 prereq 12 credits of literature. Readings in the literature of the Middle Ages.

485 CHAUCER 3 prereq 12 credits of literature. The intensive study of Chaucer’s major poetry in original Middle English.

486 MILTON 3 prereq 12 credits in literature. Study of Milton’s poetry with some attention to significant prose pieces.


495 INDEPENDENT STUDIES 3 R-9. Special projects in particular areas of literature and creative writing.

FOR GRADUATES

500-501-502 SEMINAR: BRITISH LITERATURE 3 R-18. Enter any quarter. Studies in British literature offered from various points of view; a period, a person, a genre, a special topic.

504-505-506 SEMINAR: AMERICAN LITERATURE 3 R-12 prereq graduate standing. Enter either quarter. Studies in American Literature offered from various points of view: a period, a person, a genre.

600 SEMINAR: PROBLEMS IN RESEARCH 3. Guidance in graduate subject areas and research.

699 THESIS V R-6 to 9.

FOREIGN LANGUAGES

offers instruction in French, German, Greek, Italian, Latin, Romance Philology, Russian, and Spanish. The undergraduate courses have been planned to meet the needs of those who have begun the study of the language in high school as well as those who undertake such study for the first time in the university. The courses in this department are intended to serve several purposes: (1) to contribute to the general education of students by giving them an opportunity to gain insight into patterns of living and thinking which are different from their own; (2) to enable students to gain proficiency in the language; (3) to prepare candidates for academic careers in research and college teaching by providing a solid basis for graduate studies in the various languages; (4) to prepare future teachers of foreign languages on the secondary level; (5) to give language training requisite to careers in government, foreign commerce, and library work; and (6) to enable students to read foreign publications and to meet graduate foreign language requirements in their field.

Two language laboratories with facilities for listening, oral practice, and recording are used to supplement regular class work, and are available to give the individual student opportunity to develop active use of the language.

The Department of Foreign Languages offers undergraduate majors in Classics, French, German, Italian, Latin,
Russian and Spanish. The Master of Arts degree is offered in French, German and Spanish.

HIGH SCHOOL PREPARATION. A student who has received credit for a foreign language in high school (but not in a college or university) and who wishes to continue that language at this University will enroll as follows: four years in high school, courses numbered 300 and above; three years in high school, 212 or 202; two years in high school, 211 or 201; one year in high school, 102, or if some time has intervened, 101.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN LANGUAGES. The total number of credits required for a major in a foreign language varies with the student's high school preparation or language credit transferred from another college or university. Requirements for the departmental (academic) majors are set forth below under the various languages. Requirements for the teaching majors and minors are listed separately under Education. English 100 must be completed during the freshman year. It is strongly recommended, but not required, that English 300 also be completed.

RECOMMENDED BACKGROUND COURSES FOR FOREIGN LANGUAGE MAJORS. The Department of Foreign Languages strongly recommends that students who are planning to continue beyond the fifth quarter or who particularly want a reading knowledge, take the following courses:

- Intermediate French (201) or German (201), or equivalent
- Advanced Composition (300) or Latin (302), or equivalent
- Advanced Reading (312) or German (311), or equivalent
- Audio-lingual emphasis

FOR UNDERGRADUATES

GENERAL RECOMMENDATIONS. It is strongly recommended that students who plan to continue beyond the fifth quarter or who particularly want a reading knowledge, take the following courses:

- Intermediate French (201) or German (201), or equivalent
- Advanced Composition (300) or Latin (302), or equivalent
- Audio-lingual emphasis

FOR GRADUATES

- Advanced Reading (312) or German (311), or equivalent
- Audio-lingual emphasis

GERMAN MAJOR REQUIREMENTS: Candidates for the degree of Bachelor of Arts with a major in German must meet the following requirements in addition to the general requirements for graduation listed earlier in the catalog:

1. German 101-102
2. At least 22 credits of upper division work in German, which should include any four of the six period courses (321 to 333)
3. Five quarters, or equivalent, of another foreign language
4. Two quarters in history of Europe, chosen from the following: History 215, 216, 309, 310, 311, 312, 313, 314, 315, 327, 328, 329. German 303 may be substituted for one quarter of history, but if so, it may not also be counted as a French course.

FOR UNDERGRADUATES

GENERAL REQUIREMENTS: Candidates for the degree of Bachelor of Arts with a major in German must meet the following requirements in addition to the general requirements for graduation listed earlier in the catalog:

1. German 101-102
2. At least 22 credits of upper division work in German, which should include any four of the six period courses (321 to 333)
3. Five quarters, or equivalent, of another foreign language
4. Two quarters in history of Europe, chosen from the following: History 215, 216, 309, 310, 311, 312, 313, 314, 315, 327, 328, 329. German 303 may be substituted for one quarter of history, but if so, it may not also be counted as a French course.
FOR UNDERGRADUATES AND GRADUATES

301 ORAL AND WRITTEN EXPRESSION I 3 prereq 203. Emphasis on pronunciation and phonetics.

302 (300) ORAL AND WRITTEN EXPRESSION II 3 prereq 301 or c/i. Emphasis on active use of German.

303 GERMAN CIVILIZATION AND CULTURE 3 prereq 302 or c/i.

311-312-313 (201-202-203) SURVEY OF GERMAN LITERATURE 2 prereq 203. Enter any quarter.

401 APPLIED LINGUISTICS 3 prereq 302 or c/i. Specific problems in contrastive phonology, morphology, and syntax.

402 ADVANCED COMPOSITION 3 prereq 302 or c/i. Intensive practice in writing on different levels of usage and style.

421-422 DANTE'S DIVINA COMMEDIA 3 prereq 311-312-313, or coreq and c/i.

431-432 ITALIAN RENAISSANCE 3 prereq 311-312-313, or coreq and c/i.

433 17TH AND 18TH CENTURY ITALIAN LITERATURE 3 prereq 311-312-313, or coreq and c/i.

441 19TH CENTURY ITALIAN LITERATURE 3 prereq 311-312-313, or coreq and c/i.

442 20TH CENTURY ITALIAN LITERATURE 3 prereq 311-312-313, or coreq and c/i.

460 HISTORY OF THE ITALIAN LANGUAGE 3 prereq 311-312-313, or coreq and c/i.

490 SEMINAR 3 R-18 prereq 311-312-313. Major authors, periods, or genres.

PORTUGUESE

FOR UNDERGRADUATES

101-102-103 ELEMENTARY PORTUGUESE 5.

211-212 PORTUGUESE READINGS 4 prereq 103 or =.

ROMANCE PHILOLOGY

FOR UNDERGRADUATES AND GRADUATES

360 (375). INTRODUCTION TO ROMANCE PHILOLOGY 3 prereq 203 or 217 (Latin or a Romance Language). The development of the Romance languages from Latin to their present-day forms. (Required of all candidates for an advanced degree in any Romance Language.)

RUSSIAN

MAJOR REQUIREMENTS: Candidates for the degree of Bachelor of Arts with a major in Russian must meet the following requirements in addition to the general requirements for graduation listed earlier in the catalog.

1. Russian 101 to 203, inclusive, or equivalent.

2. At least 27 credits of upper division work in Russian, which must include 311-312-313.

3. Five quarters, or equivalent, of another foreign language.

4. Two quarters in history of Europe, chosen from the following: History 215, 218, 308, 324, 325, 326.

FOR UNDERGRADUATES

101-102-103 ELEMENTARY RUSSIAN 5.

201-202-203 INTERMEDIATE RUSSIAN 4 prereq 103 or =. Audio-lingual emphasis. For students who plan to obtain a major or minor in Russian, or for those particularly interested in the active skills. Credit not allowed for 201-202 and 211-212.

211-212 RUSSIAN READINGS 4 prereq 103 or =. For students who do not plan to continue beyond the fifth quarter, or who particularly want a reading knowledge. Credit not allowed for 211-212 and 201-202.

FOR UNDERGRADUATES AND GRADUATES

301 APPLIED LINGUISTICS 3 prereq 203. An introduction to the phonology, morphology, and syntax of standard (Moscow-Leningrad) Russian.

302 RUSSIAN COMPOSITION AND CONVERSATION 3 prereq 301.

303 RUSSIAN CIVILIZATION AND CULTURE 3 prereq 302 or c/i.

311-312-313 SURVEY OF RUSSIAN LITERATURE 3 prereq 203. Enter any quarter.

421-422 19TH CENTURY RUSSIAN PROSE 3 prereq 311-312-313 or concurrent registration and c/i. Enter either quarter.

423 20TH CENTURY RUSSIAN LITERATURE 3 prereq 311-312-313 or concurrent registration and c/i.

431 SOVIET RUSSIAN LITERATURE 3 prereq 311, 312, 313 or c/i.

432 18TH CENTURY RUSSIAN LITERATURE 3 prereq 460 or c/i.

433 PUSHKIN 3 prereq 311, 312, 313 or c/i.

441 RUSSIAN DRAMA 3 prereq 311, 312, 313 or c/i.

442 GOLDEN AGE OF RUSSIAN POETRY 3 prereq 311, 312, 313 or c/i.
SPANISH

MAJOR REQUIREMENTS: Candidates for the degree of Bachelor of Arts with a major in Spanish must meet the following requirements in addition to the general requirements for graduation listed earlier in the catalog.

1. Spanish 101 to 203 inclusive, or equivalent.
2. At least 33 credits of upper division work in Spanish, which must include 311-312-313 and 321-322-323.
3. Five quarters, or equivalent, of another foreign language.
4. Spanish majors are advised to take at least one quarter of Hispanic American History (History 265-266-267) when this course is offered.

FOR UNDERGRADUATES

101-102-103 ELEMENTARY SPANISH 5.
201-202-203 INTERMEDIATE SPANISH 4 prereq 103 or =. Audio-lingual emphasis. For students who plan to obtain a major or minor in Spanish, or for those particularly interested in the active skills. Credit not allowed for 201-202 and 211-212.
211-212 (213-215) SPANISH READINGS 4 prereq 103 or =. For students who do not plan to continue beyond the fifth quarter, or who particularly want a reading knowledge. Credit not allowed for 211-212 and 201-202.

FOR UNDERGRADUATES AND GRADUATES

301 ORAL AND WRITTEN EXPRESSION I 3 prereq 200. Emphasis on pronunciation and phonetics.
302 ORAL AND WRITTEN EXPRESSION II 3 prereq 301 or c/. Emphasis on active use of Spanish.
303 CONTEMPORARY HISPANIC CIVILIZATION AND CULTURE 3 prereq 202 or c/. 311-312-313 (301-302-303) SURVEY OF SPANISH LITERATURE 2 prereq 203. Enter any quarter.
401 APPLIED LINGUISTICS 3 prereq 302 or c/. Specific problems in contrastive phonology, morphology, and syntax.
402 ADVANCED COMPOSITION 3 prereq 202 or c/. Intensive practice in writing on different levels of usage and style.
405 ADVANCED CONVERSATION 3 prereq 303 or c/. For students who do not plan to continue beyond the fifth quarter, or who particularly want a reading knowledge. Credit not allowed for 211-212 and 201-202.
421 (335) SPANISH NOVEL TO 1800 3 prereq 311-312-313, or concurrent registration and c/. 422 (351) 19TH CENTURY SPANISH NOVEL 3 prereq 311-312-313, or concurrent registration and c/. 423 (360) 20TH CENTURY SPANISH NOVEL 3 prereq 311-312-313, or concurrent registration and c/. 431 (336) SPANISH DRAMA TO 1800 3 prereq 311-312-313, or concurrent registration and c/. 432 (352) 19TH CENTURY SPANISH DRAMA 3 prereq 311-312-313, or concurrent registration and c/. 433 (361) 20TH CENTURY SPANISH DRAMA 3 prereq 311-312-313, or concurrent registration and c/. 434 (353) SPANISH POETRY OF THE GOLDEN AGE 3 prereq 311-312-313, or concurrent registration and c/. 442 NINETEENTH CENTURY SPANISH POETRY 3 prereq 311, 312, 313 or coreq and c/. 443 TWENTIETH CENTURY SPANISH POETRY 3 prereq 311, 312, 313 or coreq and c/. 450 SPANISH AMERICAN DRAMA 3 prereq 311, 312, 313 or coreq and c/. 451 SPANISH AMERICAN ESSAY 3 prereq 311, 312, 313 or coreq and c/. 452 SPANISH AMERICAN NOVEL 3 prereq 311, 312, 313 or coreq and c/. 453 SPANISH AMERICAN POETRY 3 prereq 311, 312, 313 or coreq and c/. 460 HISTORY OF THE SPANISH LANGUAGE 3 prereq 311-312-313, or concurrent registration and c/. 460 (491) SEMINAR 3 R-18 prereq 311-312-313. Studies in major authors, periods, or genres.

FOR GRADUATES

111-112 SPANISH FOR GRADUATE STUDENTS 4. Intensive reading course to prepare graduate students to pass the reading examination required for advanced degrees. (Does not carry graduate credit.)
500 DIRECTED READINGS 1-3 R-9 prereq undergraduate major in Spanish.
590 GRADUATE SEMINAR 3 R-9.

THE TEACHING OF FOREIGN LANGUAGES

FOR UNDERGRADUATES AND GRADUATES

390 (391) METHODS OF TEACHING FOREIGN LANGUAGES 3 prereq Foreign Language 203 or equivalent. Fundamental concepts, objectives, and techniques in the teaching of modern foreign languages. Separate sections in individual languages whenever practicable.
395 METHODS OF TEACHING FOREIGN LANGUAGES IN ELEMENTARY SCHOOLS 3 prereq FL 203 or =. Fundamental concepts, objectives, and techniques in the teaching of foreign languages in elementary schools. Separate sections in individual languages whenever practicable.

FOR GRADUATES

501 RESEARCH METHODS 1. Required of all candidates for an advanced degree in any foreign language.
590 (591) SEMINAR ON LANGUAGE TEACHING 9. For language teachers. Credits may be applied toward a graduate degree in either languages or Education.

FORESTRY

is the professional management of natural resources, primarily forests and forest lands. A forester analyzes and interprets the physical, biological, sociological, and economic problems involved in the continued production and utilization of these resources.

Forestry education provides a background of knowledge of soils, vegetation, water, and wildlife and the use of forest lands for sustained production of timber and related products, grazing by domestic and wild animals, watershed protection, and outdoor recreation. It is directed toward an understanding of the relationship of these elements to human institutions.

The four-year curricula leads to the degree of Bachelor of Science in Forestry or Bachelor of Science in Resource Conservation. Masters degrees offered as: Master of Forestry, Master of Science in Forestry, Master of Science in Resource Conservation, Master of Science in Wildlife Biology and Master of Resource Administration. The Doctor of Philosophy degree is offered in Forestry and Plant Science. (See Graduate School).

Forestry education includes laboratory and field study, affording opportunities to apply the theoretical knowledge gained in the classroom. A summer camp is not required; however, each undergraduate student must spend two summers of three months each in successful employment, gaining practical experience in work pertinent to his curriculum.

Employment opportunities for forestry graduates are substantial. The increase of intensive forestry and other resource use throughout the world is extending areas of employment for professional foresters and conservationists. At the same time, the diversity of forest conditions and users in Western Montana leads to excellent local opportunities.

Foresters are employed by government agencies, private companies, research organizations, consulting firms, and educational institutions. The curricula of the School of Forestry also prepare the students to meet Federal and State civil service requirements.

Degree candidates must complete a curriculum in forestry satisfactory to the staff of the School.
The University of Montana School of Forestry was founded in 1913, one of the original group accredited by the Society of American Foresters. It is currently one of 31 accredited schools in the nation.

HIGH SCHOOL PREPARATION. The student entering the School of Forestry should have a sound high-school background in English, mathematics, social studies, and the sciences. A minimum of one and one-half years of algebra and one year of geometry are desirable.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN FORESTRY. A minimum of 116 credits, with or without the physical education requirements. Three courses selected from English, mathematics, social studies, and the sciences. A minimum of one and one-half years of algebra and one year of geometry are desirable.

For 252—Land Econ 
For 250—Basic Concepts of Ecology 
For 251—General Physiology 
Bot 250—Introduction to Calculus 
Chem 111, 112, 118 . To continue as majors in the School of Forestry the student must have a grade-point average of 2.5 or above to be admitted to the School of Forestry.

SPECIAL EXPENSE CHARGE: all students enrolled in the School of Forestry or taking Forestry courses are assessed $15.00 per quarter for travel, laboratory materials and other instructional costs.

BACHELOR OF SCIENCE IN FORESTRY

This degree meets the professional requirement for foresters. There are three majors: forest resources management, forest science, and forest business.

CORE CURRICULUM

(Courses required of all majors in Forest Resources Management)

(First Year)

<table>
<thead>
<tr>
<th>Course</th>
<th>Quarter Credits</th>
</tr>
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<tbody>
<tr>
<td>Bot 111-114—General Botany</td>
<td>5</td>
</tr>
<tr>
<td>Chem 101-102-110—General and Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>(or Chem 121-122-123—College Chemistry)</td>
<td>(5)</td>
</tr>
<tr>
<td>For 240—Forest Instruments</td>
<td>(0-3)</td>
</tr>
<tr>
<td>Math 116-117—College Algebras, Trigonometry</td>
<td>5</td>
</tr>
<tr>
<td>Math 118 (or 119)—Introduction to Calculus</td>
<td>5</td>
</tr>
<tr>
<td>H &amp; PE 100</td>
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(Second Year)

<table>
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<tr>
<th>Course</th>
<th>Quarter Credits</th>
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</thead>
<tbody>
<tr>
<td>Bot 250—Basic Concepts of Ecology</td>
<td>4</td>
</tr>
<tr>
<td>Bot 251—Ecology Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>Bot 252—Plant Physiology</td>
<td>5</td>
</tr>
<tr>
<td>Econ 201-202—Principles of Economics</td>
<td>3</td>
</tr>
<tr>
<td>Phys 111—General Physics</td>
<td>5</td>
</tr>
<tr>
<td>For 210—Forest Soils</td>
<td>4</td>
</tr>
<tr>
<td>For 250—Forest Instruments</td>
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<tr>
<td>For 352—Land Survey Systems and Graphics</td>
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<tr>
<td>For 390—Dendrology</td>
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<td>Electives (2)</td>
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(Third Year)

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<th>Course</th>
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<tr>
<td>For 300—Forest Measurements</td>
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<td>For 380—Forest Biometry</td>
<td>3</td>
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<tr>
<td>For 361—Aerial Photogrammetry</td>
<td>3</td>
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<tr>
<td>For 310—Foundations of Silviculture</td>
<td>3</td>
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<tr>
<td>For 260—Range Management</td>
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<tr>
<td>Forest Protection (3)</td>
<td>(3-4)</td>
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<tr>
<td>For 322—Wildlife Conservation</td>
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<tr>
<td>For 383—Wildland Recreation Management</td>
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<td>For 390—Forest Products (4)</td>
<td>(4)</td>
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<tr>
<td>For 322-323—Natural Resources Policy &amp; Administration</td>
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<td>For 260—Dendrological Principles</td>
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<td>For 354—Transportation Systems</td>
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(Fourth Year)

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<tr>
<td>For 450—Forest Economics</td>
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<td>For 451—Integrated Forest Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>For 390—Senior Thesis</td>
<td>3</td>
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<tr>
<td>For 401—Timber Management</td>
<td>4</td>
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<tr>
<td>Electives</td>
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(1) Life or Physical Science Course may be substituted
(2) Social Science or Humanities or both
(3) Two courses in protection required, selected from fire, pathology, entomology
(4) One course required, selected from wood anatomy, wood chemistry, or forest industries.

MAJOR IN FOREST RESOURCES MANAGEMENT

This major is for students who are preparing for work in resource management, administration, and staff specialization. Every student with a major in forest resources management receives a broad basic education in Forestry, and in addition can select courses beyond the core curriculum to provide depth in one or more resource fields. The student will select his courses in consultation with his advisors and other faculty.

MAJOR IN FOREST SCIENCE

This major is for students who wish to prepare for graduate study in some specific area of forest science. It is open only to students who are approved by the Dean of the School of Forestry and maintain a grade-point average of 2.7 or above.

The curriculum is designed to meet the needs of the individual student, and consists of courses chosen by the student with the counsel of his advisor and approval of the Forestry faculty.

MAJOR IN FOREST BUSINESS

This major is for students who are preparing for work in forest industries such as manufacturing, product development, marketing, sales, and other fields not primarily forest resource oriented.

The curriculum is designed to meet the needs of the individual student and consists of courses chosen by the student with the counsel of his advisor and approval of the faculty of the School of Forestry.

BACHELOR OF SCIENCE IN RESOURCE CONSERVATION

This degree meets professional requirements in selected natural resource fields allied to forestry. Major programs are offered in range, recreation, soil, water, and wildlife. There is no fixed core curriculum for the BSF degree, although the first two years of study are almost identical in course content to those required for the BSF. In the third year, the student selects a specific area of study, with a specialized program worked out with the advisor and approved by the faculty.

GRADUATE WORK. See Graduate School Bulletin.
1) WOOD ECONOMICS 3 (3-0) prereq Econ 202 and c/i.
2) WILDLIFE CONSERVATION 3 (3-0) prereq 360 and c/i.
3) ENVIRONMENTAL CONSERVATION 3 (3-0) prereq c/i.
4) WILDLAND RECREATION MANAGEMENT 3 (3-0).
5) RECREATION AREA PLANNING AND DESIGN 4 (3-4) prereq 383.
6) HYDROLOGIC PRINCIPLES 3 (2-4) prereq c/i.
7) CHEMISTRY OF PLANT CONSTITUENTS. (See Chem 360 and Bot 360.)
8) CHEMISTRY OF WOOD PRODUCTS. (See Chem 361.)
9) FOREST RESOURCE INVENTORY 4 (0-3) prereq 300, 301.
10) TIMBER MANAGEMENT 4 (4-0) prereq 311, 420, senior standing in Forestry.
11) FOREST RESOURCES FIELD TRIP 1-3 prereq upper division student and c/i. A joint faculty and student field trip for study and discussion of resource management and use.
12) SOIL CHEMISTRY 2 (2-0) prereq 210.
13) SOIL PHYSICS 2 (2-0) prereq 210.
14) FOREST REGIONS OF NORTH AMERICA 3 (3-0) prereq 310-311 or c/i. The ecological development of forest regions; current silvicultural problems and practices.
15) FOREST ECONOMICS 3 (3-0) (420) prereq Econ 202 or c/i.
16) ECONOMICS OF WILDLAND RECREATION MANAGEMENT 3 (3-0) prereq Econ 202 and c/i.
17) FOREST TAXATION SYSTEMS 3 (3-0) prereq 420, 421, or c/i.
18) INDUSTRIAL FORESTRY 3 (3-2 labs by arrangement) prereq 421 and 490 or c/i.
19) FOREST METEOROLOGY 4 (4-0).
20) BIOLOGY OF FOREST INSECTS 3 (3-0) prereq Zool 112. (See Zool 442.)
21) FOREST INSECT ECOLOGY 3 (2-3) prereq 432.
22) MECHANICALLY DERIVED WOOD PRODUCTS 3 (3-0) prereq junior standing in the School of Forestry.
23) SAWMILLING AND LUMBERING 3 (2-4) prereq junior standing in the School of Forestry.
24) WOOD SEASONING AND PRESERVATION 3 (3-0) prereq junior standing in the School of Forestry.
25) WOOD UTILIZATION FIELD TRIPS 3 prereq junior standing in the School of Forestry.
26) ADVANCED AERIAL PHOTOGRAMMETRY 3 (2-2) prereq 351 and c/i.
27) AERIAL REMOTE SENSING 3 (3-0) prereq 351 and c/i.
28) TIMBER HARVESTING 3 (3-0) prereq Econ 202.
29) ROUTE PLANNING, SURVEYS, AND DESIGN 3 (2-0) prereq 354, 454. Route planning, surveys, and design; physical and economic alternatives of route selection. (454) Contemporary problems of forest road development and use. (456) Specific problems in the transportation development of forest land areas.
30) MECHANICAL PROPERTIES OF WOOD 3 (1-4) prereq 340, 357.
31) RANGE ANALYSIS AND SURVEY TECHNIQUES 4 (2-6) prereq 360 and c/i.
32) RANGE LIVESTOCK NUTRITION 3 (2-2) prereq 360 and c/i.
33) RANGE ECONOMICS 3 (3-0) prereq 360, Econ 201 and c/i.
34) RANGE ADMINISTRATION 2 (2-0) prereq 360 and c/i.
35) REGIONAL RANGE MANAGEMENT 6 prereq 353, 460, 461 and c/i.
36) ADVANCED WILDLIFE CONSERVATION 5 (4-2) prereq Zool 358, 360, or c/i.
37) BIG GAME CONSERVATION 3 (2-field trips) prereq 390 or c/i.
38) WILDLIFE HABITAT CONSERVATION 5 (4-field trips) prereq 470 and c/i.
39) INTEGRATED FOREST RESOURCE MANAGEMENT 3 (3-0). (445) prereq senior standing. (481) prereq 480 or c/i. (482) prereq 481 or c/i.
40) PARK MANAGEMENT 3 (3-0) prereq 383, 385 and c/i.
41) WATERSHED MANAGEMENT 3 (2-4) prereq 385.
42) HYDROLOGY SEMINAR 2 (2-0) o/y prereq c/i. Regional, national, and international problems of water supply, transfer and quality.
43) WATER USE AND DEVELOPMENT 2 (2-0) o/y. History of water use and policy development.
44) SOIL AND WATER CONSERVATION 4 (3-4) prereq c/i.
45) SENIOR WILDLIFE SEMINAR 1 prereq senior standing in Wildlife Biology or Forestry. See Zoology 491-492-493 and Botany 491-492-493.
46) FOREST ECOLOGY OF THE NON-TEMperate ZONES 2 (3-0).
47) FORESTRY AND ECONOMIC DEVELOPMENT 2 (2-0) prereq c/i.
48) WORLD RESOURCE PROBLEMS 2 (2-0) prereq c/i.
49) SENIOR THESIS 2 prereq senior standing. Preparation of a master's paper based on research in a field selected according to the needs and objectives of the student.
50) FOREST ECOLOGY AND ADMINISTRATION 4 (2-8) prereq 440, 458.
51) WILDLIFE ADMINISTRATION 2 (3-0) prereq 440 and c/i.
52) WILDLIFE ORGANIZATION AND ADMINISTRATION 2 (3-0) prereq 441.
53) WILDLIFE MANAGEMENT 3 (3-0) prereq 442.
54) WILDLIFE BIOLOGY 3 (3-0) prereq 441.
55) WILDLIFE CONSERVATION 3 (3-0) prereq 442.
56) FOREST MANAGEMENT 2 (2-2) prereq 442.
57) FOREST MANAGEMENT 1 (2-0) prereq 442.
58) FOREST INDUSTRIES 2 (2-2) prereq 442.
59) FOREST HUMANITIES 2 (2-2) prereq 442.
60) FOREST ETHICS 2 (2-2) prereq 442.
61) FOREST LAW 2 (2-2) prereq 442.
62) FOREST ECONOMICS 2 (2-2) prereq 442.
63) FOREST POLICY 2 (2-2) prereq 442.
64) FOREST SCIENCE 2 (2-2) prereq 442.
65) FOREST TECHNIQUES 2 (2-2) prereq 442.
66) FOREST EDUCATION 2 (2-2) prereq 442.
67) FOREST ENVIRONMENT 2 (2-2) prereq 442.
68) FOREST ADMINISTRATION 2 (2-2) prereq 442.
69) FOREST MANAGEMENT 1 (2-0) prereq 442.
70) FOREST ECONOMICS 1 (2-0) prereq 442.
71) FOREST POLICY 1 (2-0) prereq 442.
72) FOREST SCIENCE 1 (2-0) prereq 442.
73) FOREST TECHNIQUES 1 (2-0) prereq 442.
74) FOREST EDUCATION 1 (2-0) prereq 442.
75) FOREST ADMINISTRATION 1 (2-0) prereq 442.
76) FOREST MANAGEMENT 1 (2-0) prereq 442.
77) FOREST ECONOMICS 1 (2-0) prereq 442.
78) FOREST POLICY 1 (2-0) prereq 442.
79) FOREST SCIENCE 1 (2-0) prereq 442.
80) FOREST TECHNIQUES 1 (2-0) prereq 442.
81) FOREST EDUCATION 1 (2-0) prereq 442.
82) FOREST ADMINISTRATION 1 (2-0) prereq 442.
83) FOREST MANAGEMENT 1 (2-0) prereq 442.
84) FOREST ECONOMICS 1 (2-0) prereq 442.
85) FOREST POLICY 1 (2-0) prereq 442.
86) FOREST SCIENCE 1 (2-0) prereq 442.
87) FOREST TECHNIQUES 1 (2-0) prereq 442.
88) FOREST EDUCATION 1 (2-0) prereq 442.
89) FOREST ADMINISTRATION 1 (2-0) prereq 442.
90) FOREST MANAGEMENT 1 (2-0) prereq 442.
91) FOREST ECONOMICS 1 (2-0) prereq 442.
92) FOREST POLICY 1 (2-0) prereq 442.
93) FOREST SCIENCE 1 (2-0) prereq 442.
94) FOREST TECHNIQUES 1 (2-0) prereq 442.
95) FOREST EDUCATION 1 (2-0) prereq 442.
96) FOREST ADMINISTRATION 1 (2-0) prereq 442.
97) FOREST MANAGEMENT 1 (2-0) prereq 442.
98) FOREST ECONOMICS 1 (2-0) prereq 442.
99) FOREST POLICY 1 (2-0) prereq 442.
100) FOREST SCIENCE 1 (2-0) prereq 442.
101) FOREST TECHNIQUES 1 (2-0) prereq 442.
102) FOREST EDUCATION 1 (2-0) prereq 442.
103) FOREST ADMINISTRATION 1 (2-0) prereq 442.
GENERAL COURSES

are offered as surveys or introductions to broad fields of learning, but there is no "general course" in which a degree is offered. Any University student is compelled to study in many fields as a matter of general education; and specialization in one curriculum, although required for a degree is strictly limited (see Graduation Requirements). But it has been found advisable to provide certain degree-curricula which overlap two or more of the curricula described in other pages of the catalog and in which the specialized instruction is drawn from several fields. The curricula in Biology, Liberal Arts, Pre-Medical Science and Wildlife Biology are examples. It also has been found desirable to provide particular courses which overlap two or more fields; these are described below.

HUMANITIES

FOR UNDERGRADUATES

151-152-153 INTRODUCTION TO THE HUMANITIES 3. Enter any quarter. English majors who have completed 9 or more credits in literature may not receive credit in this course. A general survey of the field of Humanities through the centuries from the Greeks to Americans, with the primary aims of understanding and appreciation.

160 (161) CLASSICAL MYTHOLOGY. (See Foreign Languages.)

200 (221) FOREIGN LITERATURES IN TRANSLATION. (See Foreign Languages.)

250 A SEARCH FOR IDENTITY 3. Revisionism as manifested in the African past and in the conflicts faced by the American Negro from 1819 through the Civil War.

260 A SEARCH FOR IDENTITY 3. The American Negro from Reconstruction to the present day with specific emphasis on the development of the Black Power movement.

267 SOUL COMMUNITY 3. A critique and analysis of the Black writers, artists, and musicians in relation to the Black man's search for identity.

341 THE FILM 3. An historical survey of the film with appreciation of techniques. (Given under auspices of the School of Journalism and the departments of English and Drama.)

351 STUDIES IN HUMANITIES 3 R-9 prereq Gen 151-152-153. Advanced studies in Humanities. Given by different instructors under various titles.

365 THE ANATOMY OF PERSONAL RELATIONSHIPS 3 prereq any two of the 200 level courses. A critical analysis of the role of the races in light of their personal relationships with each other.

366 THE BLACK RENAISSANCE 3 prereq any two of the 200 level courses. A study of the artistic renaissance in Harlem during the 1920's and early 1930's; its contributions, why it failed, and why today the Black Renaissance is in fact emerging.

367 URBAN AFFAIRS 3 prereq any two of the 200 level courses. A study of the urban setting with particular emphasis on the nature and purpose of community organization and the political, economic, educational, religious and cultural phenomena of the urban setting which reveal the racist character of our society.


FOR UNDERGRADUATES AND GRADUATES

440 STUDIES IN COMPARATIVE LITERATURE 3. The origins and dissemination of important literary ideas, trends, and movements.

451 SEMINAR IN THE HUMANITIES 3 R-9 prereq Humanities 351 or c/l. Specialized topics or areas such as Chinese and Japanese literature. Taught by various instructors from departments in the Humanities Group. Topics announced in class schedules.

SCIENCE

FOR UNDERGRADUATES

110 THE USE AND ABUSE OF DRUGS 3. The nature of drugs: their history, development and normal use in the treatment of disease. Drug dependence and abuse and the special classes and types of drugs involved. (Not open to pharmacy majors.)

125-126-127 SCIENCE FOR ELEMENTARY TEACHERS 5 (4-2). Open only to majors in Elementary Education. (125) A survey of the fundamental aspects of physical science, including force and motion, electricity, magnetism, wave motion, gravity, heat, states of matter, the universe, geological processes, atomic structure, and related topics. (126) An investigation of the interrelationships of physical and biological sciences: the elements, chemical reactions, basic organic chemistry, biochemistry, metabolism, cell structure, relationship of cell structure and function, cell division, basic genetics, origin of life, and related topics. (127) A survey of the animal and plant kingdoms, including taxonomy, morphology, physiology, life cycles, ecology, evolution, and related topics.

131 INTRODUCTION TO BIOLOGICAL SCIENCE 4 (3-2). The basic principles of biology, including aspects of cytology, cellular metabolism and genetics. Primarily for students not majoring in Botany, Microbiology or Zoology. Credit not allowed for this course and Botany or Zoology 111.

132 EVOLUTION, GENETICS AND MAN 3 prereq Gen 131 or =. Evolution, especially as related to man and including evidence, mechanisms, genetics, nature of hereditary material and adaptation. Not counted toward a major in Botany, Microbiology or Zoology.

300 CONSERVATION OF NATURAL AND HUMAN RESOURCES IN MONTANA 3 prereq c/l. A critical survey of climate, physiography, mineral resources, soil and water, as related to plant and animal production and human life; the effects of climatic conditions on human development and the development of principles underlying improved management of the natural resources. A survey of how human conditions and cultural resources. The methods of social implementation of desired practices. Primarily a teacher training course. Does not satisfy requirements for degrees in Botany or Zoology or the group requirements in science.

322 METHODS OF TEACHING BIOLOGY 3 (2-4) prereq senior or graduate standing. Designed to familiarize prospective high school biology teachers with texts, demonstrations and laboratory experiments used in contemporary approaches to teaching biology.

GENERAL LITERATURE

FOR UNDERGRADUATES AND GRADUATES

307-308-309 THE DRAMA. (See English.)

344 THEORIES OF DRAMA. (See English.)

491-492-493 LITERARY CRITICISM. (See English.)
**GEOGRAPHY**

is concerned with understanding the earth and man. An interest in the place-to-place variations of both men and their terrestrial environments is basic, but the overriding objective of the study of Geography is an understanding of the physical and social processes that influence the use of the world.

Geographers investigate the processes of human use and change of the earth. Such research requires knowledge of climates, vegetative cover, soils, landforms as a fundamental background, which, combined with studies in the disciplines of the Social Sciences, may be used to understand comparative cultural histories, economic changes, resource use patterns, or other areal differentiations of earth-using systems. Such studies fall under the broad category of human geography. Interests in the more strictly environmental aspects of the surface processes operating on the earth, such as in geomorphology, meteorology, climatology, and biogeography, are considered physical geography.

The undergraduate major in Geography offers the student an opportunity to receive a broad liberal education designed to develop a spatial perspective on the human occupation of the earth and an awareness of the diversity of man and environment in an evolving world. Although undergraduate training in Geography does not provide a set of standardized, highly marketable skills, challenging opportunities for employment exist in industry, government, and the teaching professions at all levels.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN GEOGRAPHY.** In addition to the general requirements for graduation listed earlier in the catalog, a 2.5 average on 75 credits in the geography major is required. These 75 credits are distributed as follows: (1) 45 credits in geography, including geography 101 and 102, two courses in physical geography; two courses in cultural geography, a regional course and one technique course: (2) 27 credits in science and social science, including 9 and 18 or 18 and 9 credits respectively selected from a department in these two major areas: anthropology, economics, history, political science or sociology (social sciences) and biological sciences, chemistry, geology, mathematics or physics and astronomy (science). Course sequences in other areas might be arranged between the student and the geography department: (3) English Composition 101, 3 credits. Students with obvious deficiency in composition, apparent from written work handed in, will be required to pass English 367, Mathematics 125 and/or 199, or its equivalent.

Up to 6 credits from the following courses may be accepted towards the major with departmental consent: Botany 335, Business Administration 344, Computer Science 201, Economics 385, Forestry 380, Geology 310, Humanities 397, Mathematics 125 and/or 199, Sociology 394, 392, Physics 131-132, other relevant courses if arranged with the department.

Unless the student intends to specialize in a part of the world where the use of some other language prevails, French or German is strongly recommended for the foreign language requirement.

**GRADUATE WORK.** See Graduate School Bulletin.

**FOR UNDERGRADUATES**

For Explanation see Course Descriptions (Index).

101 **PHYSICAL ELEMENTS OF GEOGRAPHY** 5. The earth and planetary relations, maps, climate, vegetation, and landforms.

102 **INTRODUCTORY HUMAN GEOGRAPHY** 5. Cultural features of the world’s landscapes in relation to human occupation of the earth.

103-104-105 **WORLD GEOGRAPHY** 2. Enter any quarter. Place-to-place differences in physical, social, and economic characteristics of human landscape. (103) The Americas; (104) Europe, U.S.S.R., and Africa; (105) Asia, Australia, and Oceania. Credit is not applicable to the major.

201 **MAP INTERPRETATION** 3 prereq 101 and c/i. Map, chart and aerial photo evaluation. Distribution of human and physical features. Coverage and quality of world mapping.

211 **ECONOMIC GEOGRAPHY** 5. Distribution of economic activities with emphasis on location factors.

380 **CARTOGRAPHY** 5 prereq c/i. The interpretation, construction, and uses of important map projections. Cartographic techniques utilized in the presentation of data.
GEOLOGY

Geologists study the earth, interpreting the processes and events which have made it what it is. They apply the results of all other sciences. As theories have continually gained new knowledge, geology has moved to a state of scientific revolution fully comparable to that brought to physics years ago by the discovery of radioactivity. Geologists concern themselves with problems as diverse as origin of ocean basins, movement of continents, the history of volcanoes, composition of the moon, crystal structure of minerals, behaviour of streams, evolution of life, finding petroleum and silicate deposits, and quality of the environment. The variety of geological techniques includes X-ray spectrographic analysis, petrographic microscopy, aerial photography, geologic mapping, and seismographic work as well as the classic hammer and coffeepot. Geologists find employment in a wide variety of occupations including university teaching, laboratory research, oceanographic exploration, federal and state geology, mine- ing, water supply, and many other projects. Geologists also work on some problems, and petroleum and mining exploration and development.

The Department of Geology offers bachelors, masters and doctoral degrees as well as a bachelors degree in education with a major in earth science. All degree programs in the department involve some field work and a combination of applied and theoretical approaches required for sound general background in other sciences. The department strongly recommends that persons wishing to enter professional employment in geology plan to get a graduate degree.

HIGH SCHOOL PREPARATION. In addition to the general requirements for University admission, it is recommended that high school preparation include as much mathematics and science as possible.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN GEOLOGY. In addition to the general requirements for graduation listed earlier in the catalog, the department requires the following courses for the undergraduate degree in Geology: Geology 101-102, 103, 200, 202, 203, 310, 311, 312, 315, 320, 331, 429. Also required are Mathematics 116, 117, 118 or 121, 118 (recommended before physics sequence); one course in Computer Science; Physics 111-112, 113 or 221-222-223 (recommended); Chemistry 121-122-123 and Chemistry 245, or 261, or 371; Two quarter beginning sequence in Biology. English composition 100, 300 and 450 are required. Special curricula different from those described may be contrived to meet the needs of students who are maintaining an overall academic average of B or better. The grade of "P" or "F" is given for all work in Geology 300, 400, and 600.

FIELD TRIP EXPENSES. Students should go to the Department of Geology office for a statement of expenses connected with undergraduate field trips. Field Geology (429) should be taken during the junior or senior years.

SOME SUGGESTIONS FOR PLANNING A PROGRAM IN GEOLOGY

A student majoring in geology should take the courses in mathe matics, physics, chemistry and biology as early as possible in his college career, preferably during the freshman and sophomore years. Geology 101-102 and Field Geology as well as at least one course in English should also be completed during these years.

Introduction to Geology (101-102), Environmental Geology (103) and Field Methods (130) should be taken the summer following the sophomore year. The paleontology-stratigraphic sequence (110, 111, 112 or 113, 114, 115, 117, 118 or 221, 118 (recommended before physics sequence); one course in Computer Science; Physics 111-112, 113 or 221-222-223 (recommended); Chemistry 121-122-123 and Chemistry 245, or 261, or 371) requires at least two or three years of general education courses. At this time, the student has sufficient background to contribute original thought.

SUMMARY OF REQUIREMENTS

2. Geology course requirements 50
3. Other departmental requirements (Math 15 crs.; Chem. 20 crs.; Physics 15 crs.; Biol. 10 crs.; Eng. 9 crs.) and one course in Computer Sci. 1 cr.) 70
4. Health, Physical Education and Recreation 3
5. Electives (preferably outside of Geology) 25
Total 190
6. Geology Summer Field camp (between Fr-Soph yrs.) 10
GRADUATE WORK. See Graduate School Bulletin.
425-426 *PETROGRAPHY/PETROLOGY 5 (2-6) prereq 315, 420.
425 Descriptive and interpretative study in thin section of igneous minerals and rocks. (426) Similarly treats metamorphic rocks. Advanced petrologic considerations included in both quarters.
432 SEDIMENTATION 4 (3-2) prereq 102 or 110, 315. Interpretation of depositional environments using both sedimentary structures and grain size and shape analysis; lab includes statistical techniques and field trips.
440 INTRODUCTION TO GEOPHYSICS 3 (3-0) prereq Physics 115, or 223, Math 118 or concurrent registration, Geol 331. Theory of commonly studied geophysical methods. Individual methods—magnetic, seismologic, electric and radiometric; emphasis on the interrelationships of geophysical anomalies and geologic structure. Geophysical case histories.
445 X-RAY DIFFRACTION AND SPECTROGRAPHIC ANALYSIS 4 (2-4) prereq 312. Theory of x-rays, their use in identification of poly crystalline materials; qualitative and quantitative chemical analysis by x-ray techniques; petrologic application.
465-466 *VERTEBRATE PALEONTOLOGY 4 (2-4) prereq 408 or Zoog 304 or = (465) Taxonomy, morphology and phylogeny of mammals, birds, fishes, and other vertebrates; Quaternary history and paleoecology.
470 (510) ADVANCED GEOTECTONICS 3 (3-0) prereq 331. Analysis, synthesis of regional structural features including geosynclines, major mountain arcs, compressional mountain systems, structure of plateau and broad warps. Conditions within earth; possible causes of deformation.
475 GLACIAL AND PLEISTOCENE GEOLOGY 3 (3-0) prereq Geol 102 or 331. Geologic problem of construction of ice sheets and glaciations of last 3 million years. Paleoclimatic interpretation of Quaternary glacial, glaciofluvial, and lacustrine deposits and features.
480 HYDROGEOLOGY 3 (3-0) prereq 310. Occurrence and distribution of surface and ground waters on earth's crust. Actions of flowing water, and development and evolution of watersheds.
490 SENIOR SEMINAR V prereq upper class standing in geology or comparable background in related areas and c/1. TEACHER EDUCATION COURSES
300 GEOLOGY FOR NATURAL SCIENCE TEACHERS Su 4 (3-2) prereq Math 118, 223, or 315. Physical geology including minerals, rocks, erosion by streams and glaciers, action of volcanoes, origin of earthquakes. Includes field trips. Not allowed toward a degree in geology. Credit not allowed for 101-102 or 110 and 300.
301 GEOLOGY AND MINERAL RESOURCES OF MONTANA Su 3 (2-3) prereq 300 and c/1. Geology and evolution of Montana and adjacent areas through two billion years. Metallic and non-metallic deposits in and near Montana. Field trips. Not allowed toward a degree in geology.
302 FIELD GEOLOGY FOR NATURAL SCIENCE TEACHERS Su 3 (2-3) prereq 300. Field trips to study structural geology, igneous and metamorphic rocks, geologic structures, landscapes, and selected mineral deposits. Aerial photographs and topographic maps to interpret geologic structures, five days of on-campus instruction, ten days in the field during evening discussion periods. Not allowed toward a degree in geology.
306 METHODS OF TEACHING EARTH SCIENCE 3 (2-4) prereq 203 or 210. Contemporary tests, demonstration techniques, laboratory experiments, and field procedures needed in developing an earth science curriculum. (Not allowed toward a degree in geology. Course does not satisfy group requirements. Taught by School of Education.) FOR GRADUATES
507 *CARBONATE PETROLOGY 4 (2-4) prereq 420. Description, classification and environmental interpretation of carbonate rocks chiefly in the Missoula Basin and environs.
511-512 *METALLIC MINERAL DEPOSITS 4 (2-3) prereq 203, 315, 331. Theoretical and descriptive aspects of nature, origin, classification and geologic environments of metallic mineral deposits; field trips.
513 *NON-METALLIC MINERAL DEPOSITS AND COAL 4 (3-2) prereq 203, 315, 331. Descriptive and interpretative aspects of origin, distribution and significance of a variety of building and chemical materials, uranium and coal. Field trips.
520 *PETROGENESIS 3 (3-0) prereq 426 and 428. Advanced discussion of modern theories of origin of igneous and metamorphic rocks.
525 *STRUCTURAL ANALYSIS 3 (2-4) prereq 315, 331. Study and interpretation of the fabric of naturally deformed rocks. Analysis of tectonites on all scales, including geologic map, hand specimen and core log. Structural and mapping problems.
533 *PHYSICAL PROPERTIES OF MINERALS 3 (3-0) prereq 315, math 311, physics 223. Physical and chemical properties of minerals and their genetic implications.
540 *ADVANCED STRATIGRAPHY 3 (3-2) prereq 130, 331, 410-411. Advanced discussion of modern concepts concerning stratified rocks.
540 *PRINCIPLES OF SEISMOLOGY 3 (3-2) prereq 440, Math 311, Physics 472. Elementary elastic wave theory; Analysis of stress and strain, equations of motion, surface and body waves, reflection and refraction, observation and instrumentation. Applications to earth physics and exploration.
590 SEMINAR V prereq graduate standing in geology or comparable background in related areas and c/i. Examples of topics: Environmental problems, theoretical aspects of geomorphology, chemistry of ore fluids, structure of mineral deposits, electrical and heat flow, electrical and magnetic anomalies, remote sensing, rocks mechanics, terrestrial impact features, crystal growth, co-existing minerals, high pressure-low temperature geology of sandstones, texture of metamorphic rocks, conodonts, phylogeny of lower vertebrates, composition of Cambrian-Ordovician strata, tectonic stratigraphy of North America.
595 ADVANCED PROBLEMS V. Investigations of geologic problems exclusive of thesis research.
600 RESEARCH V. Directed research to serve as thesis for graduate degrees.
600 THESIS V R-15. Credit assigned upon submittal of final copy of approved and bound thesis.
SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN HEALTH AND PHYSICAL EDUCATION. Two degrees are offered in this Department: Bachelor of Arts, which requires that the foreign language requirement listed in the catalog be satisfied, and Bachelor of Science, which requires no course in foreign language. Students electing either degree will fulfill the requirements listed below. Upper division students are expected to maintain a cumulative grade-point average of at least 2.0 in order to continue as majors in the department.

To remain enrolled in Professional Activities 115-120 and 215-220, students must meet the minimum departmental proficiency level in both skill and knowledge of the areas of specialization. The course requirements may be allowed for a demonstrated high level of proficiency.

English 100 and 300 are required. Students scoring below the 17th percentile on the ACT English examination, must first successfully complete English 001. Those above the 90th percentile will be exempt from either English 100 or 300.

General Education (67 crs.: Group I to include Zool 111 and 202, Mich 102; Group II to include Chem 101, Phys 100, Physics 111 to include Chem 101; Group III to include Soc 101; Group IV Electives. In addition English 100, 300, Home Ec 146, Psych 110 and 230, Speech Comm 111, and HPER 115-120 (3 crs. fulfill the HPER requirements). Pre-physical therapy students see area of specialization below.

Teacher certification: Course requirements in Education to meet teacher certifications are listed under Education in this catalog. Certification is approved for K-12 grades.


PRE-ADAPTIVE PHYSICAL THERAPY

Many therapy schools require a "C+" minimum grade point average of applicants. Courses in biological and physical sciences must be "C" or better for acceptance by a number of these schools.


ATHLETIC TRAINING-ADAPTIVE PHYSICAL EDUCATION (166 crs.)

General Education (78 crs.: Group I to include Zool 111, 112, 202, Mich 102: Group II to include Chem 101, 102, 160; Group III to include Soc 101; Group IV Electives, English 100, 300; Home Ec 146, Psych 110, and Math 100, 111, Comm 111, Pharm 110, HPER 115-120 (6 cr. fulfills HPER requirement). Teacher Certification: Course requirements in Education to meet teacher certification are listed under Education in this catalog.


SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN RECREATION. Two degrees are offered: Bachelor of Arts with major in Recreation which requires that the foreign language requirement listed in the catalog be satisfied, and Bachelor of Science which requires no course in foreign language. Students electing either degree will fulfill the requirements listed below. Upper division students are expected to maintain a cumulative grade-point average of at least 2.0 in order to continue as majors in the department.

General Education (85 crs.: Group I to include Zool 111, 112, 202, Mich 102; Group II Electives; Group III to include Soc 101, 102, 202; Group IV Electives. English 100, 300, Psych 110, 230, SocPa 111, 314.


Requirements from other Departments (30 crs.: Educ 347; For 383, 385; Jour 270; SW 181; Art (4 crs. required) 125, 129, 127, 129, 130; Drama (4 crs. required) 121, 374, 377; Music 134.

Electives: 35 crs. of which no more than 20 crs. may be from HPER.

GRADUATE WORK. See Graduate School Bulletin.

FOR UNDERGRADUATES

For Explanation see Course Descriptions (Index).

100 PHYSICAL EDUCATION—3 quarters (3 credits) required of all students except those exempt for cause. Only one credit per quarter or per term of summer session may be used to meet the requirement. No activity may be repeated to meet the 3 quarter requirement. Beginning level in activity courses may not be repeated for credit. Students may elect to be graded on pass-fail basis.

105 CONCEPTS OF PHYSICAL EDUCATION 1.

150-200 PROFESSIONAL ACTIVITIES FOR MAJORS AND MINORS 1. Six quarters required of all HPER majors and minors. 3 quarters substitute for 3 HPER 100 requirements. All students required to meet proficiency standards set by Department.

111-120 PROFESSIONAL ACTIVITIES FOR MAJORS AND MINORS 1. Six quarters required of all HPER majors and minors. 3 quarters substitute for 3 HPER 100 requirements. All students required to meet proficiency standards set by Department.

115-120 PROFESSIONAL ACTIVITIES FOR MAJORS AND MINORS 1. Six quarters required of all HPER majors and minors. 3 quarters substitute for 3 HPER 100 requirements. All students required to meet proficiency standards set by Department.

115-120 PROFESSIONAL ACTIVITIES FOR MAJORS AND MINORS 1. Six quarters required of all HPER majors and minors. 3 quarters substitute for 3 HPER 100 requirements. All students required to meet proficiency standards set by Department.

159 1ST AID 2. Red Cross Standard and Advanced courses and Medical Self-Help. Certification secured upon completion of course.

160 190, 198 HISTORY AND PRINCIPLES OF PHYSICAL EDUCATION 3.

208 ADVANCED COACHING TECHNIQUES 1.

210 COACHING OF FOOTBALL 3.

211 (212) THEORY OF OFFICIATING FOOTBALL 1.

213 COACHING GYMNASTICS AND TUMBLING 3 preq 119 (Men), 119 (Women), and c/l.

214 COACHING OF WRESTLING 3 preq c/l.

215-220 PROFESSIONAL ACTIVITIES FOR MAJORS AND MINORS 1-8. All students required to meet proficiency standards set by department.

223 (200) COACHING OF BASEBALL 3.

235 RECREATION SPORTS OFFICIATING, THEORY AND PRACTICE 3.

232 OFFICIATING BASKETBALL (WOMEN) 2.

234 DANCE HISTORY 3.


236 THEORY AND PHILOSOPHY OF DANCE 2.

238 WATER SAFETY INSTRUCTOR 2 preq Red Cross Senior Life Saving Certificate. Red Cross Instructor's Certificate awarded upon completion of requirements, providing student has reached his 18th birthday.

240 CARE AND PREVENTION OF ATHLETIC INJURIES 3.

250 SKI INSTRUCTORS QUALIFICATION PROGRAM 3. Pre­ req c/l. Open to all students with above average skiing ability. Techniques of Teaching Skiing including finished technical forms, teaching methods, ski school progression, and ski mechanics. Prepares the potential ski instructor for certification by the Professional Ski Instructors of America.


290 HUMAN ANATOMY 5. The systems of the body and the structure of organs composing these systems.

301-302-303 METHODS OF TEACHING PHYSICAL EDUCATION ON THE SECONDARY LEVEL 2 preq 6 credits from 115-120 and/or 215-220. Experience in teaching: class organization, analysis of techniques, development of units of instruction in seasonal sports.

305 PROBLEMS IN PHYSICAL EDUCATION 1.

310 COACHING OF BASKETBALL (MEN) 3.

311 (312) THEORY OF OFFICIATING BASKETBALL (MEN) 1.

312 (321, 322) COACHING OF TRACK 3.

323 COACHING OF COMPETITIVE SWIMMING 3 preq c/l.

324 METHODS AND MATERIALS IN BALLROOM, FOLK AND SQUARE DANCE 4 preq 220.

325 METHODS OF TEACHING MODERN DANCE 2 preq 116 (Women).

336 AQUATIC PROGRAM MANAGEMENT 3 prereq Senior Life Saving or =. Methods of teaching swimming for various age groups. Swimming pool and waterfront management.

399 TEACHING PHYSICAL EDUCATION IN ELEMENTARY SCHOOLS 3 prereq PE majors and minors, junior standing, PE 200 and 6 credits in 115-120; elementary education majors, junior standing and EDUC 202. Principles and foundations of elementary school physical education, theory and practice in selecting and teaching activities for children in grades one through six.

599 PROGRAMMING IN RECREATION 3. Principles of program planning for organized offerings in recreation. Selection, adaptation and evaluation of activities.

352 CAMP COUNSELOR 3. Qualifications and professional preparation for camp counselors.


362 RECREATION LEADERSHIP (SOCIAL RECREATION) 3 prereq Soc 101. Principles and practice in group leadership, program skills for various age groups and for special groups, such as the handicapped.

363 RECREATION LEADERSHIP (CAMP LEADERSHIP) 3 prereq Soc 101. Principles and practice in group leadership of outings activities; skills and understandings essential to organized camping.

364 FIELD WORK IN RECREATION 2, Su V R-8. Supervisory and leadership experiences, methods and techniques to be used in conducting recreation programs in outdoor recreation, community social agency and institutional situations. Laboratory given in various agencies. Activities are coordinated to outdoor activities of the season and group activities available for leadership training.

365 ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION 3 prereq 200.

378 (373, 375) METHODS IN TEACHING HEALTH 3

388 INTRODUCTION TO PHYSICAL THERAPY 3 prereq or coreq 386. Theory and practice of massage. The treatment of defects which can be brought within the field of physical education.

390 CLINICAL TRAINING IN PHYSICAL THERAPY V 1-4 8-4 prereq 386 and c/i. Practical experience in local physical therapy centers.

399 FIRST AID 3. Red Cross Standard, Advanced and Instructor’s Courses and Medical Self-Help. Certification at Instructor level upon completion of course.

405 SENIOR SEMINAR 1.

FOR UNDERGRADUATES AND GRADUATES

259 ADVANCED TECHNIQUES IN MODERN DANCE 2 prereq Modern Dance I and II.


358 THE HIGH SCHOOL INTRAMURAL PROGRAM 2.

373 THE SCHOOL HEALTH PROGRAM 3. Appraisal, preventive and remedial aspects of school health program.

384 (380-385) APPLIED ANATOMY AND KINESIOLOGY 5 prereq 290.

386 PREVENTIVE AND CORRECTIVE PHYSICAL EDUCATION 3 prereq 386. Prevention and detection of common physical defects frequently encountered by the physcial educator; follow-up programs possible under medical supervision.

387 MASSAGE 3 prereq Zool 202, HPER 384.

389 AMBULATORY TECHNIQUES FOR THE ORTHOPEDICALLY DISABLED 2 prereq 394.

401 DANCE COMPOSITION AND IMPROVISATION 3 prereq Modern Dance 1, II.

402 DANCE PRODUCTION 3 prereq 401. Choreography, staging, lighting, makeup, costume and other problems of dance in public performance including concert dance and dance demonstrations. Performance in dance concert required.

410 ADVANCED TECHNIQUES IN ATHLETIC TRAINING 3 prereq HPER 240, 384, Zool 202, Chem 160.

411 PRACTICUM IN ATHLETIC TRAINING 3 prereq HPER 410 or concurrent registration.

440 RECREATIONAL AREAS AND FACILITIES 3. The planning, construction and maintenance of urban oriented recreation areas and facilities as they relate to organized activities in public and private parks, playgrounds, play areas, all-purpose and specific use camps and day camps. Methods and techniques for financing. Tax programs and possibilities.

460 SEMINAR V 1-3 R-12.
HISTORY

is the study of man over the time span of the past, both as an individual and as a member of a group. For the student in search of a broad basis of education rather than in training for some particular occupation, the department offers a program of instruction designed to provide a knowledge and understanding of the background and ramifications of the present local, national, and world affairs. Many students combine the fields of History and Political Science.

The department helps to prepare men and women occupationally for either the domestic or the foreign service of the federal government and for positions in state and local government. It trains professional historians and political scientists. It also trains businessmen with a basis for the pursuit of their chosen profession, but also furnishes knowledge and perspective for intelligent leadership in community affairs.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN HISTORY. In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in History. A minimum of 60 credits in History is required with 40 credits from courses numbered over 300 and including History 101-102-103. All upper division credits must be completed for the B.A. History major. A minimum of 18 credits in History and 20 credits in European History plus 5 credits in another area (Asia, Canada, Latin America, Africa). The departmental English composition requirement must be completed.

A student may offer a combined major in History and Political Science with 60 credits, of which at least 20 credits must be in History and 20 credits in Political Science. A minimum of 45 credits in History is required and including History 101-102-103. A history of warfare from upon theories of war.

GRADUATE WORK. See Graduate School Bulletin.

FOR UNDERGRADUATES

For Explanation see Course Descriptions (Index)

104-105-106 EUROPEAN CIVILIZATION 4. Enter any quarter. (104) Classical Antiquity to 1450. (105) 1450-1815. (106) 1815 to present. (Credit not allowed for 104 and 242. English composition requirement must be completed. 106) completed. A history of Europe from the French Revolution. Emphasis is placed upon relationships of government and necessary command, upon problems of strategy, and upon theories of war.

335 THE BRITISH EMPIRE 4 prereq 101 or 242. English explorations and colonization. The First British Empire. Developments in the sixteenth and seventeenth centuries. The Empire today.

326-327-328 MODERN FRANCE 3 enter any quarter. (326) The political, economic, and social development of France from 1815 to 1871. (327) 1871 to 1914. (328) 1914 to 1959.


323 MODERN WAR AND WESTERN SOCIETY 3 prereq a college course in modern European history. A history of warfare from the French Revolution. Emphasis is placed upon relationships of government and necessary command, upon problems of strategy, and upon theories of war.

329 HISTORY OF CANADA 4 prereq 101, 242 or 261. Canada to the present time, with emphasis upon Canadian-American diplomatic and economic relations; the growth of the Canadian West.

330-331-332 CONTEMPORARY EUROPEAN HISTORY 3 prereq 329. The Canadian-American relationship, the growth of the Canadian West.

324-325-326 HISTORY OF RUSSIA 3. (324) The beginnings of Russia to 1613. (325) Russia from 1613 to 1825. (326) Russia in revolution: 1825 to present.

327-328-329 MODERN FRANCE 3 enter any quarter. (327) The political, economic, and social development of France from 1815 to 1871. (328) 1871 to 1914. (329) 1914 to 1959.


323 MODERN WAR AND WESTERN SOCIETY 3 prereq a college course in modern European history. A history of warfare from the French Revolution. Emphasis is placed upon relationships of government and necessary command, upon problems of strategy, and upon theories of war.

329 HISTORY OF CANADA 4 prereq 101, 242 or 261. Canada to the present time, with emphasis upon Canadian-American diplomatic and economic relations; the growth of the Canadian West.

330-331-332 CONTEMPORARY EUROPEAN HISTORY 3 prereq 329. The Canadian-American relationship, the growth of the Canadian West.

324-325-326 HISTORY OF RUSSIA 3. (324) The beginnings of Russia to 1613. (325) Russia from 1613 to 1825. (326) Russia in revolution: 1825 to present.
THE CAUSES, COURSE AND CONSEQUENCES OF THE CIVIL WAR.

438 THE GILDED AGE 3. American history 1877-1901: the politics of complacency; the agrarian revolt; triumphant industrialism: emergence of the United States as a world power.

439 EARLY 20TH CENTURY UNITED STATES. 1900-1929 3. The Progressive era of reform and intervention in World War I; the "Roaring '20's" and the Great Crash.

461-462-463 AMERICAN INTELLECTUAL HISTORY 3. Enter any quarter. (461) The formation of the American mind, emphasizing Whigs and Jackson Democrats, and the three phases of rivalry between modern Republicans and Democrats.


487-488 HISTORY OF CHINA 3 preq 379-380-381. (487) Imperial China from earliest times to 1500. (488) China and the West, 1500 to the present.

491 EUROPEAN HISTORICAL THOUGHT 2 preq 25 cr. in History. The contributions of leading 19th-century European historians to the development of modern historical analysis and interpretation.

492 PROBLEMS IN AMERICAN HISTORIOGRAPHY 2 preq 25 cr. in History. Study of the contrasts in historical interpretation by modern American historians.

493 (391) PROBLEMS IN HISTORY V R-9 preq 25 cr. in History with "B" average. Study or research in fields selected according to the needs and objectives of the individual student.

494 HONORS COLLOQUIUM IN HISTORY 1-3 R-20 c/l.

495 (395) SPECIAL STUDIES IN HISTORY 2-3 R-20 preq c/l. Offered by different instructors under various titles.

FOR GRADUATES

510 READINGS IN HISTORY 2-4 R-20. Independent study and directed research.

531 FIELD COURSE IN AMERICAN COLONIAL HISTORY 3-5. Intensive reading in American colonial history.

532 FIELD COURSE IN THE CIVIL WEST 3-5. Intensive reading in Western American history.

533 FIELD COURSE IN THE CIVIL WAR 3-5. Intensive reading in the history of the American Civil War.

534 FIELD COURSE IN MODERN AMERICA SINCE 1877 3-5. Intensive reading in the history of American civilization since Reconstruction.

535 FIELD COURSE IN AMERICAN ECONOMIC HISTORY 3-5. Intensive reading in American economic development in the nineteenth and twentieth centuries.

536 FIELD COURSE IN AMERICAN BUSINESS HISTORY 3-5. Intensive reading in the history of American business in the nineteenth and twentieth centuries.

537 FIELD COURSE IN THE AMERICAN REVOLUTION 3-5. Intensive reading.

538 FIELD COURSE IN EARLY NATIONAL AMERICAN HISTORY, 1789-1815 3-5. Intensive reading.

539 FIELD COURSE IN AMERICAN DIPLOMATICAL HISTORY 3-5.

540 FIELD COURSE IN AMERICAN CONSTITUTIONAL HISTORY 3-5.

541 FIELD COURSE IN MEDIEVAL EUROPE 3-5. Intensive reading in the history of the Middle Ages from the fifth to the fifteenth centuries.

542 FIELD COURSE IN MODERN ENGLAND 3-5 Intensive reading in British history since 1485.

543 FIELD COURSE IN MODERN GERMANY 3-5. Intensive reading in the history of Germany since 1500.
HOME ECONOMICS

Curricula are designed to provide a well rounded educational program which will not only prepare the individual for more effective living in the home and community but also for a professional career. The program assures each student an opportunity for a basic liberal education in addition to meeting professional requirements.

Opportunities for graduates are many and varied. Home Economics at the University of Montana prepares students for positions in the areas of education, extension, dietetics and institution administration, research, business, government and community services, and industry.

There are 4 general plans available to the undergraduate major. Plan 1 provides a secondary school teaching certification including the Montana Vocational Education requirements. Plan 2 prepares one for work in the area of Foods & Nutrition, including institutional management and meets the American Dietetic Association's requirements for Dietetic Internship. Plan 3 prepares one for Nursery School teaching. Plan 4 is a program in general Home Economics and the student may choose to emphasize either Clothing & Textiles or Family Relations. The general major may be combined with other offerings on the campus such as Business, Radio and TV, Psychology, Social Welfare and others. A student may earn either a Bachelor of Arts degree or a Bachelor of Science degree with a major in Home Economics.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN HOME ECONOMICS. A minimum of 50 credits in Home Economics selected as follows:

1. Required for all majors: Home Economics 109, 155, 241, 246, 265, 309; one course in English composition and one in speech communication.

The following additional courses are required according to the plan selected by the student.

1. Preparation for Teaching: Home Economics 102, 157, 158 (or 258), 210, 262 (or 362), 252, 303, 308, 310, 358, 367, 421, 490 (421 may be taken in either Education or Home Economics); Art 125; Chemistry 101: Microbiology 100, 101, 206; requirements in education to meet certification with a teaching major or minor in home economics are listed under education.

2. Foods and Nutrition and Dietetic Internship: Home Economics 210, 255, 251, 241, 246, 404, 402, 438, Chemistry 121, 122, 261, 262, 481; Microbiology 200, 306; Zoology 202; Education 205. For further requirements consult advisor.


4. General Home Economics: Home Economics 102, 157, 210, 258, 266, 302, 303, 304, 305, 490. Students select option (a) or (b) according to interests.

(a) Clothing and Textiles emphasis: Home Economics 264, 352, 353, 359, 360, 458; Art 125, 200, 201, 202; Chemistry 101. Students should satisfy the foreign language requirement. Those planning a career in retailing should take Economics 201, 205, 207; Business Administration 360, 362.

(b) Family Relations emphasis: General Home Economics requirements plus Home Economics 310, 346, 367, 490; Anthropology 153; Chemistry 101; Sociology 200, 204, 305: 6 credits of Social Welfare; Psychology 230, 240.

GRADUATE WORK. See Graduate School Bulletin.

FOR UNDERGRADUATES

For Explanation see Course Descriptions (Index)

102 PERSONAL AND FAMILY LIVING 3 (3-0). Personal development and factors which affect family and social relationships.

105 GENERAL HOME ECONOMICS 1 (0-2). Selected subjects in Home Economics. Offered by various instructors under different titles.

109 HOME MANAGEMENT IN THEORY AND PRACTICE 2 (2-0). Resources used in daily living; principles of resource use; managing in every situation to obtain satisfaction for individuals and families.

141 ELEMENTARY FOODS 3 (2-2). The selection, storage, preparation and serving of food. Non-majors and non-minors only.

146 ELEMENTARY NUTRITION 3 (3-0). Fundamental principles of adequate human nutrition. Non-majors and non-minors only.

155 TEXTILE SELECTION 3 (2-2). Fabrics for family clothing and home furnishings. Analysis of fibers, yarns, weaves and finishes.

157 INTRODUCTORY CLOTHING PROBLEMS 3 (3-0). Aesthetic and economic factors in the selection of clothing. Principles of clothing construction.

158 CLOTHING PROBLEMS LABORATORY 2 (0-4) prereq or coreq 157. Basic principles applied to planning and making garments. (For the student who is lacking in experience in clothing construction.)

210 HOUSEHOLD EQUIPMENT 3 (3-0) prereq 109. Principles of operation, materials specifications, selection, care and use of equipment.

241 (141) PRINCIPLES OF FOOD PREPARATION 3 (3-0). The selection, storage, and preparation of food. Methods of food conservation. Majors and minors only. Credit not allowed for both 141 and 241.

242 FOOD PREPARATION LAB 2 (0-4) prereq or coreq 241. Basic principles applied to food preparation. (For the student who is lacking in experience in food preparation.)

246 NUTRITION 3 (3-0) prereq Chem 101. Nutrition given in the light of the chemistry and physiology of digestion.

258 EXPERIMENTAL CLOTHING 2 (0-4) prereq 157. Working with new fabrics using a variety of construction and fitting techniques.

264 WEAVING 2 (0-4) prereq Art 125. Basic weaving techniques with emphasis on creativity.

265 CHILD DEVELOPMENT I 3 (3-0) prereq Psych 110. Prenatal through age 6.

266 CHILD DEVELOPMENT II 3 (3-0) prereq Psych 110. The child from 6-14 years.

302 HOME PLANNING 3 (2-2) prereq 210 and Art 125. Physical and aesthetic considerations in planning and selecting a home.

303 INTERIOR DESIGN AND FURNISHINGS 5 (4-2) prereq 302. Art principles applied to Interior Decoration to create attractive, efficient background for living. A study of outstanding period styles, contemporary designs and designs, plus qualities to consider in selecting home furnishings.

304 FAMILY HOUSING 3 (3-0) open to non-majors. Housing in relation to needs of various types of families and to the family life cycle.

305 MEAL MANAGEMENT 3 (3-4) prereq 109, 210, 241, 246. Nutritional and social aspects of family meals, with emphasis on time, energy, money, and equipment management.

309 FAMILY FINANCE 5 (5-0) open to non-majors. Individual and family finance with emphasis upon financial planning, savings, insurance, investments, and use of credit.

310 HOME LIVING CENTER 3 prereq 109, 210, 241, 246, 305, 309. Residence in the home living center for unmarried students; special problems of managing the home for married students.

331 (431) QUANTITY FOOD PRODUCTION V 2-4 (1-4) prereq 210. Application of principles of food preparation and food management to institutional situations. Menu planning for institutions.
FOR UNDERGRADUATES AND GRADUATES

342 EXPERIMENTAL FOODS 3 (1-4) prereq 241. Foods from the experimental point of view. Special problems are assigned for individual investigation.

346 FAMILY NUTRITION 3 (3-0) prereq 246 or c/i, non-majors c/i. The science of nutrition as it applies to the growth, development, and maintenance of health in all age groups.

352 HISTORY OF CLOTHING AND TEXTILES 3 (3-0). Historic costumes and textiles and their influences on modern dress and fabrics.

358 ADVANCED CLOTHING PROBLEMS 3 (1-4) prereq 157 or c/i. Modern principles used in the construction of tailored garments. Experimentation with a variety of techniques and fabrics.

359 CLOTHING DESIGN 3 (2-2) prereq 157 and Art 125. Art principles applied to designing clothing. Original designs created through flat pattern and draping methods.

360. RECENT DEVELOPMENTS IN TEXTILES 3 (2-2) prereq 155. Developments in fibers and finishes, legislation, and standardization. Comparison and evaluation of textiles.

367 ADVANCED PROBLEMS IN CHILD DEVELOPMENT 3 (1-4) prereq 265. Participation in the laboratory.

370 TEACHING IN THE NURSERY SCHOOL 5 (0-10) prereq 265, 266. (For nursery school teaching majors only.)

406 NUTRITION IN DISEASE 3 (3-0) prereq 246. The symptoms of diseases, prophylaxis, and feeding in disease.

421 TEACHING HOME ECONOMICS 5 (4-2). Preparation for teaching Home Economics in secondary schools. (Home Economics majors may take this course as Educ 421.)

432 LARGE QUANTITY BUYING 3 (3-0) prereq 331. Selection, purchase, and storage of foods for institutions.

433 INSTITUTION ORGANIZATION AND MANAGEMENT 3 (3-0) prereq 432. Efficient organization and administration of food service units, employment procedures, personnel schedules, records, food cost, and maintenance.

446 ADVANCED NUTRITION 3 prereq Chem 481 or concurrent enrollment. Readings and discussion of nutritional research.

458 READINGS IN CLOTHING 3 (3-0). The social and psychological aspects of clothing.

499 PROBLEMS IN HOME ECONOMICS V R-12. Qualified students may select for study special problems in any of the major fields of Home Economics. Offered by various instructors under different titles.

FOR GRADUATES

699 THESIS V R-15.

JOURNALISM

courses examine the news media—emphasizing their history, privileges and responsibilities—and provide instruction in skills required for careers with newspapers, radio and television stations, magazines, public relations departments, news services and related agencies. About one-fourth of the work for the B.A. in journalism is taken in the School of Journalism. Three-fourths of the total credits required for graduation provide a background in the liberal arts, stressing history, government, economics, philosophy, literature, foreign languages, psychology and sociology.

Undergraduates specialize in one of four sequences: news-editorial, radio-television, advertising or magazines.

Many graduates obtain positions on newspapers in Montana and other states. Some are foreign correspondents. Several are editors and publishers. Others hold positions with news services, radio-television stations, technical magazines, public relations firms, advertising agencies and government departments. Several are distinguished scholars, authors and teachers.

A Master of Arts in Journalism is offered (see Graduate School).

Course requirements in Education to meet teacher certification with a teaching major or minor in Journalism are listed under Education in this catalog.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, study of a foreign language and typing is recommended.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN JOURNALISM. In addition to the general requirements the candidate for the degree of Bachelor of Arts in Journalism must complete the recommended core curriculum of 22 hours, plus the requirements of his sequence, plus upper class electives to make a total minimum of 48 hours in Journalism. The core curriculum in Journalism, required of all majors, consists of Journalism 100, 150, 193, 195, 202, 210, 231, 257, 271, 272, 275, 320, 361, 491-492-493. A foreign language is required (see FOREIGN LANGUAGE REQUIREMENT in general section of catalog).

CURRICULUM IN JOURNALISM

Freshman Year

Journ 100—Social Role of the Mass Media Cr. 3
Journ 150—Elements of Writing 3
HPER 100 (3 quarters)—Health, Physical Education and Recreation 3
Additional courses to meet University requirements 39-46

Sophomore Year

Journ 270—Reporting 3
Journ 290—History and Principles of Journalism 3
Additional courses to meet University requirements 39-50

Junior and Senior Years

Journ 360—Principles of Advertising 3
Journ 361—Advertising Sales 2
Journ 371—Advanced Reporting 2
Journ 372—Specialized Reporting 2
Journ 380—News Editing 2
Journ 381—Advanced News Editing 2
Journ 481-482-483—Senior Seminar 6
Journ Electives (including sequence requirements) 15-35
Additional Electives 67-29

Total recommended hours in Journalism 195
Total recommended hours in General Education 147

JOURNALISM CURRICULUM

NEWS-EDITORIAL SEQUENCE: Additional 9 hours required to be chosen from Journalism 367, 380, 360, 367.

ADVERTISING SEQUENCE: An additional 9 hours required to be chosen from Radio-Television 346; Journalism 383, 383, 384.

MAGAZINE SEQUENCE: An additional 9 hours required to be chosen from Journalism 327, 332, 333, 334.

RADIO-TELEVISION SEQUENCE: An additional 9 hours required to be chosen from Radio-Television 341-342-343, 346, 348.

NOTE: Students wishing to major primarily in radio or television journalism should take the radio-television sequence in Journalism. The School of Journalism also offers a curriculum leading to a Bachelor of Arts degree in Radio-Television (see Radio-Television).

FOR UNDERGRADUATES

For Explanation see Course Descriptions (Index)

100 SOCIAL ROLE OF MASS MEDIA 3. Open to non-majors.
150 ELEMENTS OF WRITING 3.
190 CURRENT AFFAIRS 1. Open to non-majors.
227 ELEMENTARY PHOTOGRAPHY 3 prereq c/i. Open to non-majors.
270 REPORTING 3. Open to non-majors.
290 HISTORY AND PRINCIPLES OF JOURNALISM 3. Open to non-majors.
237 NEWS PHOTOGRAPHY 3 prereq 227.
322 MAGAZINE MAKEUP AND EDITING 3 prereq c/i. Open to non-majors.
333 MAGAZINE ARTICLE WRITING 3 prereq c/i. Open to non-majors.
334 TRADE AND TECHNICAL WRITING 3 prereq c/i. Open to non-majors.
335 PROMOTION AND PUBLIC RELATIONS 3 prereq c/i. Open to non-majors.
The Supreme Court of Montana admits graduates to practice without examination. Most graduates become practicing attorneys. Others enter government service, business, or finance, with or without additional studies in these latter fields. Some take advanced or more specialized studies (such as taxation) at law schools specializing in more advanced legal education. They are also to be found in the ranks of leading practitioners in many large cities of the United States.

CALENDAR

FALL SEMESTER 1970

September 21-22, Monday and Tuesday Orientation of new law students
September 22, Tuesday .......... Registration
September 29, Wednesday .......... Classes begin at 8:00 a.m.
November 11, Wednesday .......... Veterans Day, no classes
November 12, Thursday .......... Thanksgiving Vacation begins
November 30, Monday .......... Classes resume at 8:00 a.m.
December 19, Saturday .......... Christmas vacation begins after last class
January 4, 1971, Monday .......... Classes resume at 8:00 a.m.
January 23 through January 30, Monday through Saturday .......... Semester examinations

SPRING SEMESTER 1971

February 10, Wednesday .......... Registration
February 11, Thursday .......... Classes begin at 8:00 a.m.
March 29, Monday .......... Spring vacation begins after last class
May 31 through June 5, Monday through Saturday .......... Semester examinations
June 6, Sunday .......... Commencement

GENERAL STATEMENT: The Law School is accredited by the American Bar Association of American Law Schools. Organization of instruction is upon the semester basis, the school year being divided into two semesters of approximately eighteen weeks each, including vacation periods. For detailed information concerning facilities, descriptions of courses, and miscellaneous administrative regulations the applicant should consult the Law School Bulletin.

REQUIREMENTS FOR ADMISSION: The Law faculty passes on all applications for admission to the Law School. Candidates must have a baccalaureate degree or its equivalent from an approved college or university. Prior to the Law School, non-law students are expected to be in the upper one-third of their class. Special students must have a baccalaureate degree or its equivalent from an approved college or university. They are also to be found in the ranks of leading practitioners in many large cities of the United States.

College credit in the principles of financial accounting is also required for admission. Normally two quarters or two semesters of accounting are necessary to fulfill this requirement.

The Law School Admission Test is required of all applicants for admission to the Law School. It should be taken during the year preceding the one for which admission is sought. Information concerning the test and application forms may be obtained from the Law School Bulletin.

Requirements for admission to the Law School must be submitted before June 1 of the year in which entrance is contemplated. In addition to the credentials required by the Registrar of the University, the applicant must submit to the Law School (a) an official transcript of all college and law school work previously undertaken; (b) a statement of character and fitness; and (c) a report of his grade on the Law School Admission Test.

A fee of $20.00 must be paid at the time of making application. No refunds will be made, but upon matriculation, if the student enters the semester indicated on the application for admission, this fee will be credited as the law student activity fee.

ADMISSION TO ADVANCED STANDING: Applicants for admission to the Law School with advanced standing must satisfy the requirements for admission to the Law School and show: (1) that the law work previously undertaken has been in an approved law school; (2) that the average in all law work for which the student has registered and received a grade is equivalent to that required for graduation from the institution attended; (3) that the applicant is in good standing.
standing and eligible to continue in the law school previously attended; and (4) that the applicant is eligible to continue in this Law School under the policies specified herein. An applicant is not likely to be admitted unless he has a very high scholastic average in the law work previously taken and is exceptionally qualified to pursue the study of law.

BASIS FOR EXCLUSION: (1) Failures: A student who has failed more than 10 credits shall be excluded from the Law School. Any student who has completed two semesters of law study but thereafter fails two courses in any semester shall be excluded from the Law School. (2) Weighted Average: A student whose law school record is deficient more than five (5) grade points at the end of his second or third semester shall be excluded. A student who fails to obtain an index of 2.9 at the end of his fourth semester of law study in all law courses for which he has registered and received a grade, or fails to maintain such an index thereafter shall be excluded from the Law School.

Any required course in which a student has received an F grade shall be repeated. No other course may be repeated. The grade received on the repeated course will not replace the prior grade. Both grades will be included in calculating the student's grade point index for all purposes.

A student excluded on the basis of substandard academic performance shall not be readmitted, except in extraordinary cases when a satisfactory showing is made to the faculty, by written petition, that the student has the capability and desire to perform satisfactory work.

REQUIREMENTS FOR GRADUATION: Candidates for the degree of Juris Doctor (J.D.) must: (1) graduate of an approved college or university; (2) complete six semesters in residence at an approved law school, the last two of which must be at the University of Montana; (3) complete ninety semester hours of study with an index of 3.0 in all law courses for which the student has registered and received a grade; and (4) complete the following required courses: all courses taught in the first and second years as specified in the course listing below, and the following third year courses: Courtroom and Office Practice, Federal Taxation, Law Review or Legal Aid, and two Seminars. A grade of C or better must be earned in each course.

Candidates for graduation with honors must achieve an index of 3.1 (honors) or 3.5 (high honors) on law credits attempted and satisfactory recitation. Failure to attend classes regularly may result in disciplinary action.

A student may not register nor receive credit for more than 16 hours of law in a semester.

FIRST YEAR

<table>
<thead>
<tr>
<th>Semester</th>
<th>First Sem.</th>
<th>Second Sem.</th>
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<tbody>
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<tr>
<td>544-545</td>
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</table>

(Add 1 hour of Legal Method (Remedial) for those deficient grade points at end of first semester. No course credit.)

SECOND YEAR

<table>
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(Add 1 hour of Legal Method (Remedial) for those deficient grade points at end of first semester. No course credit.)

ALL COURSES IN THE FIRST TWO YEARS ARE REQUIRED

THIRD YEAR

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LIBERAL ARTS

The Liberal Arts Curriculum includes Literature, Philosophy, Art, Foreign Languages and the Social Sciences. The latter includes Anthropology, Economics, History, Political Science, Sociology and Geography.

This program permits the student to work in a combination of the above areas rather than in a particular one of them and affords a varied selection from which to choose. During his last two years the student has a more advanced work in two areas of his choice.

This curriculum is designed for the student who wants a liberal education with emphasis on the humanities and social sciences.

Students must have completed, or be eligible for, English 100 in order to major in this program. Underclassmen transferring into this program should have at least a C average in all credits attempted. The liberal arts curriculum is not designed for the student who is undecided as to his major.

Following are the special requirements for the Bachelor of Arts degree with a major in Liberal Arts:

<table>
<thead>
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<th>University requirements</th>
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<td>First Year</td>
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<td>Second Year</td>
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<td>Physical Education</td>
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<td>Major Requirements</td>
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Major Requirements (courses under 300)

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<td>151</td>
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<td>251</td>
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<td>351-352</td>
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<td>195</td>
<td>10</td>
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<td>295</td>
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</table>

Major Requirements (courses 300 and above)

In two of the following three fields the student selects upper division courses equal to the number of credits indicated for those fields:

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Anthropology, Economics, Geography, Psychology, Sociology (any two)</td>
<td>24</td>
</tr>
<tr>
<td>History or Political Science or both (History 104-105-106 or 261-262 recommended)</td>
<td>24</td>
</tr>
<tr>
<td>Literature or Philosophy or Humanities 351 and 451 or any combination</td>
<td>24</td>
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</tbody>
</table>

Elective credits to bring the total to 195

Liberal arts courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
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<td>33-28</td>
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</table>

LIBRARY SERVICE. For information on courses, minimum requirements, preparation of school librarians and the teaching minor in Library Service, check under the School of Education. See education courses 340, 341, 342, 343, 344, 345, 346, 441, 442, 443, 444, 445, 447, 448 and 449. No degree is offered in this time at this field.
LINGUISTICS

is the science which investigates the structure of the languages and dialects which are in use, or have been in use, throughout the world. Its goal is to arrive at a body of knowledge about specific languages and about the nature of language, and ultimately to create theories of language. Linguistics has implications for many other disciplines and has various applications, particularly in teaching English and foreign languages. Although at present the University offers no degree in linguistics, a concentration in linguistics subjects would prepare a student to enter upon graduate work in linguistics and would provide him with a background to work in certain government and foundation supported language programs in the U.S. and abroad. The following is a list of linguistics courses offered by departments in the university (each is applicable to a major in the department concerned):

Anthropology 380—Historical Linguistics
Anthropology 480—Linguistic Methods
English 360—Introduction to Linguistics
English 371—The Structure of Modern English
English 372—The History of the English Language
English 373—Old English
English 496—The Teaching of English as a Foreign Language
English 497—Problems in English Linguistics
French 401—Applied Linguistics
German 401—Applied Linguistics
Spanish 401—Applied Linguistics
Romance Philology 360—Introduction to Romance Philology
German 460—History of the German Language
Spanish 460—History of the Spanish Language
Speech Path. & Audiology or Speech Communication 119—Phonetics
Speech Path. & Audiology or Speech Communication 232—Introduction to Communication (Phonology)
Speech Path. & Audiology or Speech Communication 419—Advanced Phonology
Speech Path. & Audiology or Speech Communication 420—Motor and Perceptual Phonetics
Speech Path. & Audiology or Speech Communication 451—Psycholinguistics

MATHEMATICS

is a discipline of intrinsic beauty when considered as an independent entity; it is also a discipline of tremendous utility in the study of the physical, biological, and social sciences, and other disciplines in general. The importance and usefulness of mathematics have never been greater, but at present time and, accordingly, the need for well-trained, competent mathematicians has never been greater than at the present time. This is indicated, in some measure, by the emphasis placed upon mathematics education and mathematics research by various agencies of the national government. The well-prepared graduate in mathematics will find excellent opportunities for a career involving teaching and research in an academic life at the high school or university level, or for a career in applied mathematics in business, industry, or government.

The Bachelor of Arts, Master of Arts and Master of Arts for Teachers, and Doctor of Philosophy degrees are offered.

HIGH SCHOOL PREPARATION. All mathematics courses for university credit require, as prerequisite, the equivalent of two years of high school algebra. Further, it is strongly recommended that the high school preparation include plane geometry, trigonometry and analytic geometry.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN MATHEMATICS. In addition to the general requirements for university credit, the following major requirements must be completed for the Bachelor of Arts degree with a major in mathematics. Math 151, 152, 153, 251, 252. A foreign language (German, French, Russian, or a combination of these) and English composition courses numbered 110 and 210 are required. Students scoring at or below the 35th percentile on the ACT English test must pass English 100 before entering English 101. Those at or above the 92nd percentile are exempt from this requirement. English 100 is not required to take 300. Students must select one of the following two options.

Option 1. Students planning to enter graduate work or industry are required to take Mathematics 311, 332, 333, 342, 422, 425 and 9 credits in other approved Mathematics courses, including 3 credits in courses numbered above 300. The student must present 32 credits in at most three sciences selected from Botany, Chemistry, Geology, Microbiology, Physics, Zoology and Mathematical Statistics (i.e., Mathematics 341, 342, 343, 441, 442, 443). Moreover, the student to present 15 credits of French, German, or Russian and 18 credits of one of the above sciences, provided that the language substitution is not one offered to satisfy the language requirement listed earlier in the catalog, the following requirements for teaching in the secondary schools.

Option 2. Students preparing for secondary school teaching are required to take Mathematics 301, 302, 303, 254, 258, 305, 342, 343, 360, and six additional credits in Mathematics courses numbered above 252. The student must complete certification requirements for teaching in the secondary schools.

GRADUATE WORK. See Graduate School Bulletin and Mathematics Department Bulletin—Graduate Work in Mathematics. Additional information may be obtained from the Chairman of the Mathematics Department.

FOR UNDERGRADUATES

For Explanation see Course Descriptions (Index)

001 (100) INTERMEDIATE ALGEBRA I. A remedial course, of which the content is second year high school algebra. (Credit not allowed toward a degree.)

116 COLLEGE ALGEBRA 5 prereq 001 or exemption by examination or two years of high school algebra. The number system, algebraic operations, binomial theorem, inequalities, systems of linear equations, elementary theory of equations.

117 TRIGONOMETRY 5 prereq 116 or exemption by examination or three and one-half years of college preparatory mathematics. Trigonometric functions and their graphs, Pythagorean identities, addition formulas, laws of sines, cosines, and tangents, exponential and logarithmic functions and their graphs, solution of triangles.

118 INTRODUCTION TO CALCULUS 5 prereq 117, or exemption by examination or four years of college preparatory mathematics including trigonometry. Students earning a grade below the 3rd percentile on the ACT English test must pass English 100 before entering English 101. Those at or above the 92nd percentile are exempt from this requirement. Credit not allowed for this course if Math 151 was previously taken.

121 ELEMENTARY FUNCTIONS 5 prereq 001 or exemption by examination and high school trigonometry or three years of college preparatory mathematics including trigonometry. Trigonometric functions and their graphs, Pythagorean identities, addition formulas, laws of sines, cosines, and tangents, exponential and logarithmic functions and their graphs, solution of triangles.

125 STATISTICS 5 prereq 001 or exemption by examination or two years of high school algebra. Probability, sampling, tests of statistical hypotheses.

130 THEORY OF ARITHMETIC 5 prereq 001 or exemption by examination, or four years of college preparatory mathematics including trigonometry. Limits, continuity, differentiation, integration, differentiation and integration of elementary functions, infinite series, Taylor series, applications.

153 LINEAR ALGEBRA 5 prereq 102. Vector spaces, determinants, matrices, applications in geometry.

199 UNDERGRADUATE SEMINAR V R 15. This course provides for special instruction in mathematics at the freshman and sophomore level.

200 INTUITIVE GEOMETRY 4 prereq 120 or c/w. Axiom systems, essentials of Euclidean plane geometry, and selected topics. (For elementary education majors.)

251 CALCULUS III 5 prereq 153. Partial differentiation, multiple integrals, line and surface integrals, series of functions, improper integrals, applications to geometry.

252 CALCULUS IV 5 prereq 251. Development of concepts of limit, continuity, convergence, differentiation, and integration.

253 ELEMENTARY DIFFERENTIAL EQUATIONS 4 prereq 153. Solution of ordinary differential equations with emphasis on linear equations and applications to physical problems. Laplace transform methods and series solutions are considered.
COMPUTING AND MATHEMATICS 3 (3-4) prereq Math 001 and c/i. The elements of linear equations, inequalities, calculus and logic and probability are presented with the aid of a digital computer. (271) Linear graphs, linear programming. (272) Intuitive calculus. (273) Logic and probability theory. (Credit not allowed for this course and Computer Science 271-272-273.)

FOR UNDERGRADUATES AND GRADUATES

301-302-303 MATHEMATICS FOR TEACHERS 3 prereq 153. An axiomatic approach to the fundamentals of plane geometry. The theory of algebraic equations with considerations for the secondary school curriculum. Various geometries and geometric transformations are introduced. They are applied to the secondary school curriculum. Content varied to meet the needs of the student. (Credit not allowed toward a degree in Mathematics.)

306 HISTORY OF MATHEMATICS 4 prereq 18 credits in Mathematics. History 101-102 strongly recommended. An historical study of the development of mathematics from the Egyptian and Babylonian eras to the nineteenth century.

307 FOUNDATIONS OF MATHEMATICS 4 prereq 30 credits in mathematics. Axiom systems, logic, set theory, cardinal numbers, propositions equivalent to the axiom of choice, paradoxes and the avoidance of paradoxes, and intuitionism.


317 DIFFERENTIAL EQUATIONS 4 prereq 358. Existence of solutions, methods of solution, and applications of ordinary differential equations, with emphasis on linear equations. (Intended primarily for those enrolled in NSF Summer Institute. Other students may enroll by special permission.)

324-325 INTRODUCTION TO ALGEBRAIC STRUCTURES 3 prereq 252. Mathematical proofs, sets, mappings, and algebraic systems.

327-328 MODERN ALGEBRA 5 prereq 252 and c/i. Groups, rings, integral domains, fields, and vector spaces. (Intended primarily for those enrolled in NSF Summer Institute. Other students may enroll by special permission.)

329 TOPICS IN ALGEBRA 4 prereq 227. A topic in advanced algebra is studied in appropriate depth. Possible topics may be chosen from the theory of groups, rings, fields, or commutative rings. (Intended primarily for those enrolled in NSF Summer Institute. Other students may enroll by special permission.)

337 (388) INTRODUCTION TO GENERAL TOPOLOGY 4 prereq 355 or c/i. Topological spaces, continuity, connectedness, compactness, convergence, separation axioms, metric spaces. (Intended primarily for those enrolled in NSF Summer Institute. Other students may enroll by special permission.)

341-342-343 MATHEMATICAL STATISTICS 3 prereq 252 and c/i. Development of necessary mathematical concepts, probability, random variables and probability distributions, sampling, test of hypotheses, confidence intervals.

344-345-346 (302-303) STATISTICAL METHODS 3 prereq 355 or c/i. Topological spaces, continuity, connectedness, compactness, convergence, separation axioms, metric spaces. (Intended primarily for those enrolled in NSF Summer Institute. Other students may enroll by special permission.)

351-352-353 MODERN ADVANCED CALCULUS 3 prereq 252 or c/i. Set theory, real number system, metric spaces, normed linear spaces with applications to differential equations, functions of several variables, inverse function theorem, integration and Stokes' theorem.

357-358 (317-318) PRINCIPLES OF ANALYSIS 5 prereq 252 and c/i. Limits, continuity, differentiation, integration, series. (Intended primarily for those enrolled in NSF Summer Institute. Other students may enroll by special permission.)

359 TOPICS IN REAL ANALYSIS 4 prereq 358. A topic in advanced analysis is studied in appropriate depth. Possible topics include infinite series, metric spaces, and functional analysis. (Intended primarily for those enrolled in NSF Summer Institute. Other students may enroll by special permission.)

369 COMPLEX ANALYSIS 4 prereq 358. Complex numbers, analytic functions, Cauchy's integral theorem, Laurent expansions, singularities of functions, theory of residues. (Intended primarily for those enrolled in NSF Summer Institute. Other students may enroll by special permission.)

370 COMPUTER METHODS 4 (5-2) prereq 252. Computer programming and survey of numerical methods. Problems of interest to secondary school teachers. (Intended primarily for those enrolled in NSF Summer Institute. Other students may enroll by special permission.)
58—MEDICAL TECHNOLOGY

MATERIAL TECHNOLOGY

is a combined study of chemistry, physics, physiology and microbiology. A medical technologist is one who, by education and training, is capable of performing, under the supervision of a pathologist or other qualified physician, the various chemical, microscopic, bacteriological and other medical laboratory procedures used in the diagnosis, study and treatment of disease. Four years are required to earn the degree of Bachelor of Science in Medical Technology. The first two years are devoted to the development of a sound foundation in physics, chemistry and biology and in obtaining an understanding of social science and cultural subjects. The last two years are designed to develop efficiency in the fields of microbiology and clinical methods.

To be certified by the Board of Registry, a student after satisfying the minimum course requirements, must have an internship of at least 12 consecutive months in an approved school of Medical Technology endorsed by the American Medical Association. Schools of Medical Technology are located in every state in the Union, the District of Columbia, Puerto Rico and the Canal Zone. After successful completion of the internship, an internship certificate from the Board of Registry is required by the Board of Registry, certifying his qualification as a medical technologist. Although this certification is desirable, persons receiving the B.S. in Medical Technology are qualified bacteriologists and can obtain positions in many laboratories without certification. Medical Technologists are in demand in hospital laboratories, in physicians' offices, research institutions, and in federal and state health departments.

Most medical technology schools require at least 3 years of college work and one year of hospital practice. The curriculum in this department has been arranged so as to allow the student to complete all course requirements during the first three years. It is possible then to take three years of college work and 12 months of hospital practice to be certified by the Board of Registry as a Medical Technologist.

Two options leading to a Bachelor of Science degree in Medical Technology are offered in the Department of Microbiology. Option I consists of four years of academic studies at the University, leading to a B.S. degree in Medical Technology. These students then fulfill the 12 months of hospital practice requested by the Board of Registry. Under Option II the student receives a B.S. in Medical Technology after approximately 3½ years of academic studies at the University and 12 months of hospital practice. Option I has a decisive advantage in giving the student a broader education for Medical Technology and a more balanced liberal education.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, it is recommended that high school preparation include Algebra, Geometry, Trigonometry, Chemistry, Physics and a foreign language.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN MEDICAL TECHNOLOGY. In addition to the general requirements listed earlier in the catalog, the following courses are required: Microbiology 111, 200, 300, 310, 406, 411, 415, 420; Physics 111-112-113; Zoology 111-112-113, 206, 204, 215; Chemistry 121-122-123, 345, 361-362, Math 116, 117, 118 or Computer Science 271-272-273; English 100 and/or 300 and 460. A minimum total of 45 credits from Microbiology courses listed above and from the following courses is required: Microbiology 306, 307, 404, 405, 418, 419, 430; Chemistry 370, 481, 482, or any other courses approved by the advisor and the chairman of the Department of Microbiology.

SUGGESTED CURRICULUM

### Option I

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<tr>
<th>Freshman Year</th>
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<td>Chem 121-122-123—College Chemistry</td>
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<td>Zool 111-112-113—Introduction to Biology, General Zoology</td>
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<tr>
<td>Micro 206—General Microbiology</td>
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<td>Engl 100—Lower Division Composition</td>
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### Sophomore Year

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<td>Chem 261-262—Organic Chemistry</td>
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<td>Chem 245—Quantitative Analysis</td>
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<td>Micro 206—General Microbiology</td>
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<td>Engl 101—Upper Division Composition</td>
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<td>Zool 204—Comparative Vertebrate Anatomy</td>
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### Junior Year

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<td>Physics 111-112-113—General Physics</td>
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<td>Micro 302—Medical Microbiology</td>
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<td>Micro 310—Inmunology and Serology</td>
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<td>Micro 415—Medical Mycology</td>
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<td>Zool 304—Comparative Vertebrate Anatomy</td>
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<tr>
<td>Engl 300—Upper Division Composition</td>
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<td>Group III or IV Electives</td>
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### Senior Year

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<tr>
<td>Micro 406-407—Clinical Microbiology</td>
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<td>Micro 420—Virology</td>
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<td>Micro 404—Molecular Genetics</td>
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<td>Zool 315—Vertebrate Histology</td>
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<td>Engl 480—Advanced Composition</td>
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<td>Electives</td>
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### Option II

Under Option II, a student must complete a minimum of 15 elective credits in residence during the senior year. Successful completion of the hospital training in a hospital approved by the American Society of Clinical Pathologists and the Department of Microbiology are required. The student will receive the equivalent of not more than 30 credit hours toward the B.S. degree for the successful completion of the hospital internship.

MICROBIOLOGY

is the study of microorganisms, including the bacteria, yeasts, molds, rickettsiae, viruses and protozoa. Special emphasis is placed on their structure, function, interactions, and relationships with man. Subtopics within the field of microbiology are listed under courses offered.

A Bachelor of Arts degree is granted upon successful completion of the curriculum in Microbiology. The initial work in this curriculum is intended to provide the student with a working knowledge of the basic principles of the physical and biological sciences and mathematics. The remaining study is devoted to a more intense and broadened training in Microbiology and ancillary fields, and may include independent study. This latter experience provides the student with an opportunity to prepare adequately for graduate studies.
Graduates are employed in clinical and research laboratories, in industrial and pharmaceutical laboratories, in county and state health offices, in various federal offices and laboratories, and in many other advantageous positions.

Highly capable graduates often continue their education in Microbiology at the graduate level. The Department of Microbiology offers the Master of Arts, Master of Science, and Doctor of Philosophy degrees. These degrees require an independent research project culminating in a thesis. Opportunities for persons holding graduate degrees in Microbiology are numerous and varied. The Department of Microbiology has available, for qualified graduate students, a number of teaching and research assistantships. (For general requirements of all graduate students and for information regarding graduate study in Microbiology, see Graduate School Bulletin).

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, it is recommended that high school preparation includes Algebra, Geometry, Trigonometry, Chemistry, Physics, and a foreign language.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN MICROBIOLOGY. In addition to the general requirements for graduation listed earlier in the catalog, the following courses must be completed for the Bachelor of Arts degree in Microbiology: Microbiology 111, 200, 302, 310, 350, 404, 405, 411, 415, 438; Zoology 111-112-113; Chemistry 121-122-123, 245, 201-202; Physics 111-112-113, Math 116-117-118 or Computer Science 271-272-273; Engl 100 and/or 300 and 450. Students planning to do graduate work are recommended, in addition to the following courses: Chemistry 370, 481-482; History 392-393-394; Philosophy 310.

The foreign language requirement listed earlier in the catalog must be satisfied. Normally Microbiology majors take 5 quarters of French, German, or Russian. Other languages or combinations must be approved by the department.

A minimum of 45 credits in the major field is required to receive a baccalaureate degree. This requirement may be satisfied by a successful completion of Microbiology courses listed above and any of the following courses: Microbiology 398, 307, 406, 406, 418, 419, 430; Zoology 321; Botany 441; Chemistry 481, 482, or any other courses approved by the advisor and chairman of the Department of Microbiology.

SUGGESTED CURRICULUM

Freshman Year

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<th>Course</th>
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<td>Chem 112-129-133—College Chemistry</td>
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<td>Zool 111-112-113—Introduction to Biology, General Zoology</td>
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<td>Micro 111 Survey of Microbiology</td>
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<td>Math 116-117-118—College Algebra, Trigonometry, Introduction to Calculus</td>
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<td>HPER—Physical Education</td>
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Sophomore Year

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<td>Chem 261-262—Organic Chemistry</td>
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<td>Chem 245—Quantitative Analysis</td>
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<td>Micro 200—General Microbiology</td>
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<td>English 100—Lower Division Composition</td>
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<td>Physics 111-112-113—General Physics</td>
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<td>Micro 350—Microbial Physiology</td>
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<td>Micro 302—Medical Microbiology</td>
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<td>Micro 310—Immunology and Serology</td>
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Senior Year

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<td>Micro 415—Medical Mycology</td>
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<td>Micro 420—Virology</td>
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<td>Micro 411—Epidemiology</td>
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FOR UNDERGRADUATES

FOR EXPLANATION SEE COURSE DESCRIPTIONS (INDEX)

100 ELEMENTARY MICROBIOLOGY 3 (3-0). The structure, function, and classification of bacteria, molds, yeasts, rickettsiae, and viruses, and their practical significance to agriculture, food, drug, food, and other industries involved in microbiology. (Students enrolling in Microb 100 are strongly urged to enroll concurrently in Microb 101—Elementary Microbiology Laboratory—which will strengthen their understanding of microbiological concepts.)

101 ELEMENTARY MICROBIOLOGY LABORATORY 2 (0-4) prereq or coreq 100. Microbiological examination of foods, water, soil and air and experiments with microorganisms of medical importance. (Not allowed toward a major in microbiology.)

102 ELEMENTARY MEDICAL MICROBIOLOGY 3 (3-0). Infectious diseases, including concepts of virulence, resistance, prevention, and control of microbial diseases in the individual and in the community. (Not allowed toward a major in microbiology.)

111 SURVEY OF MICROBIOLOGY 1 (1-0) R-3. The field and subject matter of Microbiology. (Not applicable to Group I requirements.) (Required of all Microbiology and Medical Technology freshmen. Credit not allowed for both 100 and 200.)

200 GENERAL MICROBIOLOGY 5 (3-4) prereq Chem 123 or 102. Bacterial taxonomy, morphology, physiology, and ecology; effect of environmental factors on bacteria; microbiology of soil, water, milk and foods; and industrial microbiology. (Credit not allowed for both 200 and 300.)

300 MICROBIOLOGY FOR TEACHERS 5 (3-4). Introduction to Microbiology for high school science teachers. Not open to microbiology majors. (Credit not allowed for both 300 and 400.)

302 MEDICAL MICROBIOLOGY 5 (3-4) prereq 200 or 100, 101. The fundamental principles of food, water, sewage, soil and industrial microbiology.

307 ENVIRONMENTAL HEALTH 3 (3-0) prereq 302. Environmental health as related to food, water, housing, institution, and recreational sanitation; sanitary disposal of liquid and solid wastes; vector control; communicable disease control; vital statistics; industrial hygiene; and environmental health administration. (Credit not allowed for both 302 and 306.)

310 IMMUNOLOGY AND SEROLOGY 5 (3-4) prereq 302.

350 MICROBIAL PHYSIOLOGY 5 (3-4) prereq 200.

404 MOLECULAR GENETICS 5 (3-4) prereq senior standing in one of the biological sciences and/or. Biochemical mechanisms of mutation, DNA replication, nature of the genetic code, genetic recombination, genetic transcription and translation.

405 SEMINAR 1 (1-0) R-4 prereq 200, 302. Recent literature in microbiology and related subjects.

406 CLINICAL MICROBIOLOGY 3 (3-0) prereq 200, Chem 160, 262, or 266. Principles of hematology, blood chemistry, urinalysis and other clinical parameters of disease and health open to microbiology majors. (Credit not allowed for both 406 and 403.)

407 CLINICAL MICROBIOLOGYLABORATORY 2 (4-1) prereq or coreq 406 or Chem 304 or 481 or Zool 340. Clinical diagnostic methods.

411 EPIDEMIOLOGY 3 (3-0) a/y prereq 350. The classification, cytology, composition, genetics, metabolism, growth and significance of the yeasts.

419 MYCOSPLASMA AND L-FORMS 2 (2-0) a/y prereq 302. Physiology, immunology, pathogenesis, taxonomy, and interrelationships of microorganisms lacking cell walls, including Mycoplasma (PPLO and PPLO), bacterial, fungal and other L-forms, and bacterial proplasts and spheroplasts.

420 VIROLOGY 3-5 (3-4) prereq 200. Properties, characteristics and infectious nature of bacteriophages, animal viruses and rickettsiae.

430 SPECIAL PROBLEMS IN MICROBIOLOGY V 1-5 R-5 prereq 200, 302 and 3.0 average in biological sciences. Independent research.

FOR GRADUATES

500 ADVANCED TOPICS IN MICROBIOLOGY 2 (2-0) R-10.

501 SEMINAR 1 (1-0) R-9.

502 ADVANCED IMMUNOLOGY 3 (3-0) a/y prereq 310.

505 MICROBIOLOGY LITERATURE 1 (1-0) R-9.

507 MICROBIAL CYTOLOGY 3 (3-0) o/y, Ultrastructure and function of microbial cells; methodology for study of the cytology of the cell.


509 ADVANCED VIROLOGY V 5-5 (3-5) prereq 420 or Bot 327. Relationships of animal viruses to infectious diseases; tumor induction by viruses; molecular level of viral replication.

510 ADVANCED MICROBIAL PHYSIOLOGY V 5-5 (3-5) a/y prereq 328 or Chem 482. The various metabolic pathways found in microorganisms, with special emphasis on the isolation, structure, function, synthesis, and control of macromolecules.

511 IMMUNOCHEMISTRY AND IMMUNOGENETICS 3 (3-0) prereq 310, Chem 481-482 or equivalent. Modern bio-chemically oriented research techniques. Cross listed as Botany, Chemistry, Pharmacy, and Immunology.

580 MOLECULAR BIOLOGY SEMINAR 1 R (1-0) (Also listed as Bot 580 and Chemistry 580.)

600 RESEARCH V R-25 prereq 1 quarter of residence and full graduate standing.

685-686-687 ADVANCED MOLECULAR BIOLOGY LABORATORY 1-3 prereq 482 or c/i. Modern bio-chemically oriented research techniques. Cross listed as Botany, Chemistry, Pharmacy, and Zoology.

699 THESIS V R-15.

MUSIC

The Music Department offers to students who have demonstrated talent in music, the opportunity to continue further study of music either for a profession or an avocation, and to acquire at the same time a broad general education. Complete sequences of courses are given to prepare a student for (a) a career as teacher or supervisor of music in the public schools, or for (b) a career directed toward composition, private teaching, and concert work, or for (c) thorough training in music within the structure of a broad liberal arts curriculum.

The Music Department is a member of the National Association of Schools of Music.

The following undergraduate degrees in music are offered by the Music Department:

Bachelor of Music Education
with a major in Elementary Music
with a major in Choral Conducting
with a major in Instrumental Conducting
with a major in Music Administration

Bachelor of Music
with a major in Performance
with a major in Theory or Composition

Bachelor of Arts
with a major in Music.

GRADUATE WORK. See Graduate School Bulletin.

REQUIREMENTS FOR ADMISSION. In general, admission as a freshman in the Music Department is by certificate from the high school from which the student graduates. The faculty of the Music Department is more concerned with evidence of talent, conscientious achievement in music, promise of development, and in scholarship in general, than it is in the exact content of the program which the prospective music student has followed prior to admission to college. The Music Department welcomes the opportunity to advise with students and parents during the high school period by correspondence or by interviews on the campus.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN MUSIC. In addition to the general requirements for graduation listed earlier in the catalog, the following special requirements must be completed:

1. For the Bachelor of Music Education, the course requirements in Curriculum A must be completed.

2. For the Bachelor of Music with a major in Performance or in Theory or Composition, the course requirements in Curriculum B must be completed.

3. For the Bachelor of Arts degree with music as a major, the course requirements in Curriculum C must be completed.

4. All students majoring in music are required to attend recitals as specified by the department.

5. All music majors seeking a B.M., B.M.E., or B.A. degree are required to participate in Band, Orchestra, or a Choral Group each quarter of residence of the regular school year (with the exception of the major in Elementary music). Students who are wind instrumentalists in the performance field must register for band (or orchestra, if designated) every quarter, string majors must register for orchestra every quarter, voice majors must register for choir or collegiate chorale every quarter. Students registered in any group must participate in that group for the remainder of the academic year. Piano and organ majors must fulfill this requirement by the election of Music 140 or 106-110. Exceptions to this requirement may be made only by the approval of the Music Department.

6. All candidates for the Bachelor of Music or Music Education degree must satisfactorily demonstrate completion of 6 credits in Piano 100 or completion of Piano in Class 217. Elementary music majors (Curriculum A-I) must complete 4 credits of piano 100.

7. Outstanding seniors in curriculum A or C may give joint senior recitals. Details will be supplied by the department on request.

8. All candidates for the B.M.E., B.M., or B.A. degree enrolled in Music 201 or 401 shall take a divisional jury in fall and winter quarters. All freshmen enrolled in Music 401 shall take a divisional jury at the end of Spring quarter. At the option of the division and/or instructor concerned, all other students registered in Music 201 and 401 may be required to take a divisional jury at the end of Spring quarter. If to be exercised said option to begin at the beginning of spring quarter. Students may be excused from divisional juries if (a) graduating in that quarter or (b) they have played a half or full quarter.

All students seeking upper-division standing shall take a full faculty jury in the spring quarter. The jury will include:

(a) Performance
(b) Sight-reading on performing instrument
(c) Sight-singing
(d) Evaluation of academic record for satisfactory completion, or current enrollment in 212, 239, 236, 217 (or functional), and sixth quarter of 201 (or the equivalent).

Failure to pass the jury will bar students from admission to music courses numbered 300 or above with the following exception: Transfer students who shall be admitted to 400 or above courses with the stipulation that they will have completed all lower division requirements within their first three quarters of residence.

STUDIO FEES

Non-Music Majors
One half-hour lesson per week ........................................... $12.00
Two half-hour lessons per week ........................................... 24.00
Three half-hour lessons per week ...................................... 36.00

Music Majors
One half-hour lesson per week ........................................... $12.00
Two or more half-hour lessons per week ......................... 20.00

For majors and non-majors who register for studio instruction for less than a full quarter or who withdraw before the end of the quarter, a charge of $1.75 per lesson will be made. Refunds are based on the number of weeks elapsed since the beginning of the quarter.

Lessons missed by the instructor will be made up within the quarter. Lessons missed by students or lessons falling on a legal holiday will not be made up.

Music Practice Fee: students enrolled in music courses involving use of practice rooms, pianos, and other university instruments, pay a fee of $5.00 per quarter.

A. CURRICULUM FOR BACHELOR OF MUSIC EDUCATION DEGREE

For students who sincerely feel the challenge and vital service opportunity in the music profession, and who have enough background which includes experience in musical organizations, the University of Montana offers the degree of Bachelor of Music Education, which meets the state requirements for certification for public school teaching (see Education).

(1) with a major in Elementary Music: training and background preparation adequate to teaching elementary special and general music classes in the elementary grades (K-8).

Music course requirements for Curriculum A (Elementary) shall include a total of 70 credits as follows: 201 (Piano or voice), 6 cr.; 401, 1 cr.; 100 (Piano or voice), 4 cr.; 103, 2 cr.; 106-110 or 140 (with faculty approval), 6 cr.; Theory I, 3 cr.; Theory II, 3 cr.; Aural Perception I, 4 cr.; Aural Perception II, 6 cr.; 125, 1 cr.; 128 or 129, 2 cr.; 135, 4 cr.; 206, 2 cr.; 331, 3 cr.; 335 and 336, 6 cr.; 334, 335, 336, 337, 11 cr.; 330, 3 cr.

In cases of a demonstrated proficiency in piano or voice other applied study may be substituted with the approval of the music faculty.
Non-music requirements shall include the following: English 100, 300, 400, Psychology 110, 3 er.; 445, 2 er.; Upper division electives, 12 er.; Art 303, 3 cr.; Drama 101, 3 cr.; Group I requirements shall be satisfied by Music 100, 151-152, 153, 1 er.; Speech and Communications 130 and 230, 9 cr. and by General 125, 126, 127, 15 cr. Electives will be presented to complete a total of 82 credits, including requirements for Group III.

Professional courses totaling 34 credits shall include the following: Education 100, 2 er.; Education 200, 2 er.; Education 300, 2 er.; Education 304, 15 cr.; Education 347, 3 cr.; and HPER 327, 3 cr.

It is recommended that elementary teachers take Health, Physical Education and Recreation 110-120 as part of their required electives in Physical Education (3 cr.).

Suggested Freshman Program: Music 201, Theory I, Aural Perception I, Piano in Class, Introduction to Music Literature; English 100; Psychology 110; HPER 100 (or 115); academic electives 6 cr.

(2) with a major in Choral and Instrumental Conducting and Music Administration and Music Education, and preparing toward instrumental and choral groups, and administering a Secondary School Music Department (K-12).

Music course requirements for Curriculum A-2 shall include a total of 108 credits as follows: 201, 6 cr.; 401, 1 cr.; 100, 4 cr.; 102, 1 cr.; 103, 4 cr.; 104, 4 cr.; 110-114, 14 cr. (divided 7 and 4 according to applied major and minor); Theory I, 6 cr.; Theory II, 6 cr.; Aural Perception I, 4 cr.; Aural Perception II, 6 cr.; Piano in Class, 6 cr.; Voice in Class, 3 cr.; Strings in Class, 3 cr.; 126, 129, 130, 6 cr.; 135, 4 cr.; Music History, 9 cr.; 302, 2 cr.; 303, 4 cr.; 304, 2 cr.; 323, 324, 325, 6 cr.; 331, 3 cr.; 338, 329, 4 cr.; 408, 1 cr.; upper division music electives, 6 cr.

Exceptions: Students taking piano as Performance Major will not take the 6 credits of Piano in Class and those with Voice as Performance Major will not take the 3 credits of Voice in Class, reducing the required credits accordingly. Students who complete all academic teaching minor need not complete the 6 credits in upper division music electives.

Non-music requirements include a minimum of 77 credits including the following: English Composition, 9 cr.; Psychology 110, 5 cr.; Education 200, 205, 305, 405, 407, 24 cr.

Students taking piano as Performance Major must complete Music 321, 6 cr., Piano Methods and Materials.

Suggested Freshman Program: Music 201, 106-110; Theory I, Aural Perception I, Piano in Class, Strings in Class, Introduction to Music Literature; English 100; HPER; academic electives, 16 cr.

(3) with a major in Choral Conducting: training and background for conducting Secondary School choral groups, and assisting in General Music programs (K-12).

 Majors in this curriculum follow Music A-2 with the following exceptions and alterations in the music course requirements: 201, 6 cr.; 100, 3 cr.; (piano or voice may be taken with credits for voice or piano in class included); 102, 1 cr.; 103, 2 cr.; 104, 1 cr.; 328, 2 cr.; removal of 309; 326, 2 cr.; Instruments in Class (120-6-7 and 128-29-30) 5-6 cr.

Piano in Class may be deleted in order to complete a major in Performance major and minor. An academic teaching minor is recommended.

(4) with a major in Instrumental Conducting: training and background for conducting High School, Junior High School, and beginning instrumental groups (K-12).

 Majors in this curriculum follow curriculum A-2 with the following exceptions and alterations in the music course requirements: 201, 6 cr.; 401, 1 cr.; (piano or voice may be taken with credits for voice or piano in class included); 102, 1 cr.; 103, 2 cr.; 104, 1 cr.; 328, 2 cr.; removal of 309; 326, 2 cr.; Instruments in Class (120-6-7 and 128-29-30) 5-6 cr.

Piano in Class may be deleted in order to complete a major in Performance major and minor. An academic teaching minor is recommended.

Double majors are possible in curriculum (A) Music Education and (B) Performance or Composition, if all requirements in both curricula are completed.

B. CURRICULA FOR BACHELOR OF MUSIC DEGREE WITH MAJORS IN PERFORMANCE, IN THEORY, OR COMPOSITION

The serious instrumentalist or vocalist may enroll for training leading to the degree of Bachelor of Music with a major in Performance (including emphasis on piano pedagogy), Theory or Composition. Emphasis in music course requirements and the degree requirements must be approved by a music faculty and a faculty jury examination of representative work. Students who complete an aural placement examination and are accepted by the music faculty are recommended to consider this degree: Applied Music, 12 cr.; Ensemble Music, 6 cr. (however, Music Department requires participation in ensemble during all resident quarters).

Minimum credit requirements for this degree are: a minimum of 57 credits in Music and a minimum of 120 credits in non-music courses (excluding PE) of which 93 credits must be in the College of Arts and Sciences. Majors in this curriculum are applicable toward this degree: Applied Music, 12 cr.; Ensemble Music, 6 cr. (however, Music Department requires participation in ensemble during all resident quarters).

Course requirements for Curriculum C shall include: Music 201, 6 cr.; 401, 6 cr.; Music 106-110, 6 cr.; Music 111-112-113, 6 cr.; 138-139, 4 cr.; General 211-212-213, 6 cr.; upper division music electives, 13 cr.; English Composition, 9 cr.; HPER, 3 cr.; Foreign Language, 30 cr.; General 151-152-153, 9 cr.

Suggested Freshman Program: Music 201, 106-110; Theory I, Aural Perception I, Piano in Class, Introduction to Music Literature; English 100; HPER; Academic Electives, 21 cr.

COURSES OF STUDY

Upon entrance into any applied music course the student will be given a course placement determined by his ability, previous training and experience entitle him.

MUSIC 100—Performance Minor 1-2 prereq c/l.

Individual instruction in voice, piano, organ, string, wind, and percussion instruments. Various curricula provide for study in a performance minor. This study is designed to give the beginning
Further development of harmonization, transposition, memorization, and sight-reading. Materials such as Felton Progressing to modern times and its relationship to general cultural development. For upper division electives for students not majoring in theory or composition. (May be substituted for upper division electives for students not majoring in theory or composition.)

FOR UNDERGRADUATES

For Explanation see Course Descriptions (Index)


105 SUMMER SESSION CHORUS 1.

106 UNIVERSITY CHOIR 1.

107 COLLEGIATE CHORALE 1.

110 UNIVERSITY BAND 1.

Courses 106 through 110 are major musical organizations. Precq c/l. Music majors must satisfy requirements as stated for each course. Non-music majors may apply 5 credits toward graduation.

112-113-114 THEORY I 2. Materials and structure of music. A course for beginning students in two- and four-part writing, and at the keyboard. 111 is prerequisite to 112; 112 and 113 are prerequisite to 114.

114-115-116 PIANO IN CLASS 1. All major and minor scales 2 octaves. All major and minor triads in all positions. Harmonized melodies in major and minor keys.

117-118-119 VOICE IN CLASS 1. Breathing, resonance, vowel formation. Repetitions are assigned to the individual. Non-music majors may apply 5 credits toward graduation. Only.

120-121-122 STRING INSTRUMENTS CLASS 1. Group instruction for beginning students on violin, viola, cello, and bass, with emphasis on teaching procedures.

122-123-124 MUSIC EDUCATION IN THE ELEMENTARY SCHOOLS A 2. Conducting methods and materials for teaching piano in classroom and school situations. BAND, BRASS, PERCUSSION. Materials such as Oxford and Burrows Adult Beginners books. Transposition, memorization, and sight-reading.

125-126-127 STRING INSTRUMENTS IN CLASS 3. Group instruction for beginning students on violin, viola, cello, and bass, with emphasis on teaching procedures.

128-129-130 WOODWIND; BRASS; PERCUSSION 2 and 3. Repetitions are assigned to the individual. Non-music majors may apply 5 credits toward graduation. Only.

134 INTRODUCTION TO CONCERT MUSIC 4 (3-2). Music in our present-day culture; illustrated lectures for the layman on forms, styles and composers of concert music. Guided listening to recordings.

135 INTRODUCTION TO MUSIC LITERATURE 4. The elements of musical understanding: the place of music in history with emphasis on its relation to social change and to the history of other arts. Comparative survey of masterpieces of music from the Renaissance through the Twentieth Century. Review of all periods of music history. Study of recordings. Concert attendance required. Open to non-majors with c/l. (Credit not allowable for both 135 and 136.)

136-139 AURAL PERCEPTION I 2. prereq or coreq 112-113. A laboratory course in singing and dictation to supplement Theory I.

140 ENSEMBLE GROUPS 1. Any small group of two or more players who may have a course outline of the instructor's choosing. Development of sight reading and acquaintance with musical literature and performance practice. Open to non-majors only.

156-160-161 COMPOSITION 2 R-6 prereq c/l. An introduction to the basic art of music composition. (May be substituted for upper division electives for students not majoring in theory or composition.)

211-212-213 THEORY II 2 prereq 113 and 139, coreq 237-238-239. Continuation of Theory I.

213-214-215 INTERMEDIATE PIANO IN CLASS 1 prereq Music 114 and completion of Theory II. Further development of harmonicization, transposition, memorization, and sight-reading. Materials such as Felton Progressive Studies and Bartok Mikrokosmos Books I and II.

234-235-236 HISTORY OF MUSIC 3 prereq 135. Enter any quarter. The history of music in Western Civilization from its origin to modern times and its relationship to general cultural development.

237-238-239 AURAL PERCEPTION II 2 prereq 113 and 139, coreq 211. A lab course in singing and dictation to supplement Theory II.

241-242-243 KEYBOARD HARMONY 1 prereq or coreq 213 and c/l. A practical application of theory principles to the keyboard. Exercises in modulation, transposition, and development of contemporary playing.

259 (259-260-261) COMPOSITION 2 R-6 prereq 6 credits of 159. Original work in composition. (May be substituted for upper division electives for students not majoring in theory or composition.)


311-312-313 THEORY III 2 prereq 213. Chromatic harmony; altered chords, foreign modulation; analysis and writing in Classic and Romantic styles, both instrumental and vocal.

319 PIANO FOR THE CLASSROOM TEACHER 2. Presenting simple material at a basic level, emphasizing the equivalent of the piano in classroom and school situations.

320-321 PIANO METHODS AND MATERIALS 3 e/y prereq placement in Piano Laboratory and Materials for teaching piano classes in public schools and private studios. Procedures in teaching beginning, intermediate and advanced students in private studios. Practical demonstrations and supervised laboratory experience with children and children's classes.

322-323-324 SCHOOL MUSIC 2 coreq 331. (322-324) Elementary music procedures and materials for supervising and teaching music in grades 1 through 8. (329) Junior High School Music, general and specialized music instruction for grades 7 through 9.

325-326 CHORAL ARRANGING 2. Practical experience in arranging for voice, focusing on the specific problems of the immature and changing voice.


331 CONDUCTING METHODS AND MATERIALS 3 prereq in music history or theory.

334-335-336 ELEMENTARY MUSIC TEACHING 3. Grade music procedures, materials, and equipment. (334) Kindergarten through Grade 3. (335) Fourth through Grade 6. (336) Seventh and eighth grades. (338) Elementary Music Education Majors only.

337 ELEMENTARY MUSIC ADMINISTRATION AND SUPERVISION 2. Administration and supervision of elementary music in the public schools, the development of curriculum in general music and related arts.

359 (359-360-361) COMPOSITION 3 R-9 prereq 213 and 6 credits of 359. Creative writing of music.


423 MUSIC OF THE ROMANTIC PERIOD 3 prereq 135 and 213. Detailed analysis and comparison of selected instrumental, vocal and keyboard compositions of the Nineteenth Century.

424 MUSIC OF THE TWENTIETH CENTURY 3 prereq 135 and 213. Detailed analysis and comparison of selected instrumental, vocal and keyboard compositions of the Twentieth Century.

448 SENIOR RECITAL 1-2 coreq 401.

450 (450-460-461) COMPOSITION 3 R-9 prereq 9 credits of 359. A continuation of composition with writing in the larger forms.

FOR UNDERGRADUATES AND GRADUATES

308 WORKSHOP IN MUSIC EDUCATION V 1-3 prereq junior standing in music or teaching experience. Special workshops and clinics in elementary and secondary public school teaching problems.

309 PEDAGOGY OF STRINGS 2 prereq c/l. Procedures and materials in class string instruction utilizing clinical demonstrations with children.

414 READINGS IN MUSIC CRITICISM 3. Comparison of selected writings of the century composers, including Stravinsky, Hindemith, Schoenberg, Messiaen and Copland. (For the layman as well as the music student.)

FOREGRADUATES

501 APPLIED TECHNIQUES V 1-1 R-15. Individual instruction in voice, piano, organ, string or wind instruments. Students desiring further study of minor performance fields may elect 1-2 credits.
PHARMACY—63

511 (431) ADVANCED CONDUCTING 3 R-12 prereq 322 (Choral majors), 333 (others), and c/l. A continuation of 311-332-333. Class size limited to 15. Individual study of conducting with emphasis on performance with university performing groups.

512 LITERATURE FOR HIGH SCHOOL INSTRUMENTAL GROUPS 2 a/y. Comparative study and performance of new publications

513 LITERATURE FOR HIGH SCHOOL CHORAL GROUPS 2 a/y. Comparative study and performance of new publications.

514 CURRENT LITERATURE FOR HIGH SCHOOL SOLO AND SMALL ENSEMBLE GROUPS 2 a/y. Comparative study and performance of literature with attention to pedagogical use as related to style.

515 PROBLEMS IN TEACHING ELEMENTARY MUSIC 2 a/y. Evaluation of new approaches; state and city course outlines; Music in urban and suburban schools; Church music in public education.

516 PROBLEMS IN TEACHING JUNIOR HIGH SCHOOL MUSIC 2 a/y. Evaluation of new courses of study; Development of curriculum for general and special classes; Problems selected for classes in junior high schools.

517 ORFF AND KODALY APPROACHES TO ELEMENTARY MUSIC 2 a/y. Procedures currently in use in Germany and Hungary.

518 CHILDREN’S MUSIC LITERATURE 2. Texts, recordings, and books related to growth in musical understanding through the child’s reading and listening.

519 TESTS AND MEASUREMENTS IN MUSIC 2. Evaluation of selected standardized tests.

520 RESEARCH IN MUSIC EDUCATION 2. Research problems; their planning, organization, techniques of tabulation of materials, concepts necessary for interpretation of data.

523 SCHOOL MUSIC ADMINISTRATION 3. School systems, plans for organizing and administering the music program in the elementary and junior high schools for students whose primary purpose in advanced study is preparation for administrative or supervisory work in music education.

524 MUSIC IN HIGHER EDUCATION 3. A survey of administrative problems, curricular content, contemporary teaching techniques, teaching personnel, and other areas of interest to the music teacher at the college level.

530 INDEPENDENT STUDY V R-6. Students must have projects approved by a music staff member before enrolling.

531 SYMPHONIC LITERATURE 3. A survey of orchestral music: the Mannheim chamber orchestra, the Viennese classics, the Romanticists, and contemporary European and American developments.

532 OPERATIC LITERATURE 3. Opera from its beginnings, the Florentine Camerata, 16th and 17th century French and Italian opera, Gluck’s reforms, Mozart’s dramatic works. The Romantic opera in Italy and Germany, contemporary opera trends.

533 KEYBOARD LITERATURE 3. Keyboard literature from the developments of the Baroque era to the contemporary period, including the suite, sonata, character pieces, etc.

534 CHAMBER MUSIC LITERATURE 3. Survey of chamber music, quartet, trio, etc. Musical style and technique. Historical developments and musical combinations. The literature is presented through the analysis of formal structure and aesthetic values are discussed.

535 SONG LITERATURE 3. The art song from the classic period to the contemporary era including the German lied, French chanson, and related literature.

538 CHORAL LITERATURE 3. Survey of both secular and sacred music for choral ensembles, dealing chiefly with the music from the 16th century to the contemporary school.

539 TRENDS IN CONTEMPORARY MUSIC 3. A survey of trends in European and American music from the end of World War II to the present. Emphasis on the development of electronic music, serial technique, and other new techniques of composition.

543 HISTORY OF AMERICAN MUSIC 3. The development of American music from its antecedents. The effect of an evolving democratic state on the arts, the development of various centers of performing arts and the types of music performed.


542 MEDIEVAL AND RENAISSANCE MUSIC 3. Survey of music from monophony to the 16th century.

551-555-553 ADVANCED ORCHESTRATION 2 prereq 329. Styles in orchestral techniques from 1750 to present.

554-555-556 ANALYTICAL TECHNIQUES 2. A survey of the theoretical approaches of leading composers from the polyphonic period to the present.

557 TECHNIQUES OF COMPOSITION 2. An introduction to composition for graduate students. Development of techniques and skills necessary to the composer.

558 PEDAGOGY OF THEORY 3. The teaching of theory, including techniques, procedures and sequences of materials and a comparison of individual study or group study. The application of teaching techniques, and organization of the teaching of theory in secondary schools and in colleges.

559 COMPOSITION V R-12.

560 SEMINAR V 1-5 R-15. Investigation of research in fields of individual interest.

569 GRADUATE PROJECT IN MUSIC V R-6.

599 THESIS V R-15.

PHARMACY

is the science which is concerned with the study of the physical, chemical, and biological characteristics of medicinal substances. It embraces a knowledge of medicines, the art of compounding and dispensing them, their identification, selection, combination, analysis, standardization, and mode of action.

The curriculum offered by the School of Pharmacy consists of a five-year program leading to the degree of Bachelor of Science in Pharmacy. The first two years, or pre-professional portion of the curriculum, are spent in studies of the basic physical and biological sciences, and in other areas of fundamental knowledge as necessary to satisfy the general university requirements. During the final three years of the curriculum, the student devotes his time to the study of the several pharmaceutical sciences. This program of study is designed to prepare him to serve the pharmaceutical needs of the public. Areas of additional special study include pharmaceutical chemistry, pharmacognosy, pharmacology, and pharmacy administration. A program of selected electives allows the student to place emphasis upon an area of specialization best suited to his future plans in pharmacy.

In addition to the formal education program, the candidate for licensure as a registered pharmacist must complete "practical experience" or internship in a pharmacy under the direction of a registered pharmacist and must pass an examination given by the State Board of Pharmacy. Many graduates practice pharmacy in neighborhood, or "downtown" stores. Others work in hospital pharmacies, a particularly attractive field for women. Additional opportunities exist as representatives for pharmaceutical manufacturers, in government service, in manufacturing pharmacy, and in pharmaceutical journalism. Those with advanced degrees are in demand in research positions and in pharmaceutical education.

The School of Pharmacy was established in 1907 at Montana State College and was transferred to the University campus in 1913.

The School of Pharmacy is a member of the American Association of Colleges of Pharmacy and is accredited by the American Council on Pharmaceutical Education.

A three-year professional program based on two years of general college work and leading to the degree of Bachelor of Science in Pharmacy is offered. The first two years are devoted to the pre-scribed pre-professional subjects listed below and may be taken in any accredited college or university. The professional curriculum of the School of Pharmacy covers three years and must be taken in residence at the University of Montana, although students transferring from other accredited schools of pharmacy may be admitted to an advanced standing determined on the basis of credits presented, providing that they are in good academic standing. Transfer credit for required professional courses taken at other institutions will not be accepted from students who previously received the grade of F on those courses at the University of Montana.

Upper class students may choose approved elective courses designed to prepare them specifically for either community pharmacy, sales and management, research and teaching, or for hospital and institutional pharmacy. Such elective courses will be determined by the area of specialization best suited to the student, and must be approved by the faculty advisor.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, the student needs algebra and geometry. It is also recommended that the high school preparation include advanced algebra, trigonometry, biology, chemistry, physics and particularly, if the student may pursue advanced studies in pharmacy, a foreign language.

REQUIREMENTS FOR ADMISSION TO THE PROFESSIONAL CURRICULUM:
64—PHARMACY

1. The general requirements for admission to the University of Montana as listed earlier in the catalog.

2. At least two years as prescribed in the pre-pharmacy curriculum (may be transferred from another institution):
   - First year: Chemistry 121-122-123, English, Physical Education 100 (3 cr.), Math 116, 117, Zoology 111, 113, and electives.

Applicants presenting two years of satisfactory college work but who have deficiencies in the above list may be admitted, but such deficiencies must be removed.

The English composition requirement should be completed by the end of the third year of full-time college enrollment. Effective fall quarter 1969 and based on ACT norms for college-bound students, those below the 25th percentile shall take English 101, 102 and English 300 and Speech Communication 111. Students above the 25th but below the 80th percentile, the student shall take English 100 and either English 300, 450 or Speech Communication 111. Those above the 80th percentile are required to take only one quarter of English 300, 450 or Speech Communication 111.

Each applicant for admission to the professional curriculum must have a cumulative grade point index of 3.0 on all college work taken, and completed for credit at the time he makes application for admission to the first professional year. Application forms for admission to the professional curriculum may be obtained from the School of Pharmacy and completed for consideration by the faculty of the school prior to registration. Applicants then will be granted full or provisional admission, or may be denied admission.

The autumn quarter is the normal time of admission to the School of Pharmacy.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PHARMACY. A candidate for admission to the senior year in the professional curriculum must have a grade point deficiency score of more than 10. If he has a greater deficiency, he will not be granted senior standing but will be required to retake such courses. A grade of "F" may be accepted in lieu of "D" or "D-" until he has reduced his deficiency to 10 or less. The student must complete all required courses for the first four years of study before he may enter the fifth year of the program. Then he may be admitted to senior standing and may become a candidate for a degree upon the satisfactory completion of the senior year.

Candidates for the degree of Bachelor of Science in Pharmacy must:
1. Meet the general University requirements for graduation.
2. Complete not less than five full academic years of training, including both pre-pharmacy instruction and a minimum of three years of professional instruction, to meet the accredited requirement of a minimum of five full years of professional instruction for the Bachelor of Science degree, each candidate must complete a minimum of 135 credits in professional or approved elective courses during the academic years in the professional program. To meet this requirement, each candidate should expect to complete an average of 45 credits per year.

For undergraduate and graduates

555 ADVANCED PHARMACY V 3-5 (6-9 to 15) prereq 506 or 507. Special topics in professional pharmacy.

570 COSMETICS 3 (1-6) prereq 453. Cosmetic formulation.

585 ADVANCED DRUG ANALYSIS 3 (1-6) prereq 452.

593 HOSPITAL PHARMACY 1-3 (0-9 cr.) prereq 505. Instruction and participation in the routine of a hospital pharmacy.

595 INSTITUTIONAL PHARMACY 3 (0-6) prereq c/l coreq 593. Duties and responsibilities of a pharmacist practicing in a hospital or related institution.

596 SEMINAR 1 (1-6) R-6 prereq senior standing in pharmacy.

599 SPECIAL PROBLEMS IN PHARMACY V 1-5 (0-3 cr.) R-15 senior standing in pharmacy or c/l. Research studies by conference, library and laboratory research in pharmacy, pharmaceutical chemistry, pharmacognosy, pharmacy administration or pharmacology.

FOR GRADUATES

580 ADVANCED PHARMACEUTICAL LAW 3 (3-0) prereq c/l Federal laws affecting the pharmaceutical industry.

581 DRUG DEVELOPMENT AND MARKETING 3 (3-0) prereq c/l. Administrative activities and decisions involved in the development and distribution of pharmaceutical products.

582 ADVANCED PHARMACY ADMINISTRATION 3 (3-0) prereq c/l. Analysis of the pharmaceutical industry.

586 PARENTERAL PREPARATIONS 3 (2-6) a/y. Evaluation of the various methods currently used in the preparation of bulk and individual dosage unit sterilized products.

587 CHROMATOGRAPHY 3 (2-6) a/y. Advanced theory and applications of the various techniques of modern chromatography. All phases, column, paper, thin-film, gas and ion exchange, will be explored and evaluated.

590 ADVANCED PHARMACOGNOSTICAL TECHNIQUES V 1-3 (0-5 cr.) R-10 prereq 466 or c/l. Techniques used in investigative pharmacognosy.
PHILOSOPHY—65

605 CHEMISTRY OF NATURAL PRODUCTS 3 (3-0) R-9 prereq 410 or 411. A major whose writing appears deficient for work in the philosophy manner in which great philosophers reach their conclusions.

611 ADVANCED MEDICINAL CHEMISTRY 2 (6-6 to 8) R-6. Preparation, isolation and purification of organic medicinals by advanced techniques.

619 ADVANCED PHARMACOLOGY V 3-5 (9 to 15) prereq 548 or =. The more involved actions of drugs upon cells and organs.

620 PHARMACEUTICAL MANUFACTURING 3 (1-6) R-6. Preparation of various pharmaceutical dosage forms in bulk quantity.

623 PHYSICAL PHARMACY 3 (3-0) R-6. Pharmaceutical kinetics and biopharmaceutics.

634 PRODUCT DEVELOPMENT AND FORMULATIONS 3 (9-0) R-6 prereq 630. Practical aspects of manufacturing and theory of systems in developing new product formulation.

636 AEROSOLS 3 (2-3). Formulation and production of aero­sols with emphasis upon pharmaceutical applications.

640 RADIOISOTOPES IN PHARMACY 3 (2-3) prereq chem 476. Types of radiation, methods of detection and use in pharmacy as therapeutic agents and as diagnostic and research tools.

660-661-662 ADVANCED MOLECULAR BIOLOGY LABORATORY V 1-3 prereq Chem 485 or c/i. (Crosslisted as Botany, Chemistry, Microbiology, Zoology.)

699 THESIS V R-15.

PHILOSOPHY

is the search for wisdom by carefully reasoned reflection. Philosophical enquiry is concerned with such questions as: How can we distinguish reality from appearance? Is the world to be understood as a quantity of material objects, as a framework of mental experiences, or as an open field for action? By what methods can we attain knowledge and what kinds of knowledge? Are values derived from personal feelings or from standards which may be imper­fect, verifiable, unchanging? Are there significant relations among phases of experience reflected in science, art, religion, morality and politics?

Courses in philosophy acquaint the students with the views of great philosophers, past and present. Discussion and written work are largely concerned with evaluating the reasoning by which each thinker develops his point of view.

The Bachelor of Arts and Master of Arts degrees are offered.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PHILOSOPHY. In addition to the general requirements for graduation listed earlier in the catalog, the following special requirements must be completed for the Bachelor of Arts degree with a major in Philosophy: a minimum of 50 credits including Philosophy 110, 210, 258, 299, 300, and three or more credits in courses numbered 200 or above. Normally students are expected to complete Philosophy 200, 299, 300 by the end of their sophomore year. The foreign language requirement listed earlier in the catalog must be satisfied. A major whose writing appears deficient for work in the department will be required to take an appropriate English course.

GRADUATE WORK. See Graduate School Bulletin.

FOR UNDERGRADUATES

For Explanation see Course Descriptions (Index)

100 INTRODUCTION TO PHILOSOPHY 5. The main problems of metaphysics, theory of knowledge, and moral philosophy; the manner in which great philosophers reach their conclusions.

110 LOGIC 5. Deductive and inductive inference, kinds of definition, the detection of fallacies, and the methods of science.

120 ETHICS 5. The nature of moral values, standards of moral judgment, moral problems in personal life and in social relations.

210 SYMBOLIC LOGIC 5. A systematic study of deductive logic using modern symbolic techniques.

296 (201) HISTORY OF ANCIENT PHILOSOPHY 5.

299 (202) HISTORY OF MEDIEVAL AND RENAISSANCE PHILOSOPHY 5 prereq 296.

FOR UNDERGRADUATES AND GRADUATES

300 (203) HISTORY OF MODERN PHILOSOPHY 5 prereq 299.

301-302-303 GREAT PHILOSOPHERS 1. (Given in the Summer for 10 credits per quarter.) (301) Greek, Roman, early Christian thinkers. (302) Late Medieval, Renaissance and some modern thinkers. (303) Recent and contemporary thinkers. Not open to Philosophy majors for philosophy credit.

310 (333) PHILOSOPHY OF SCIENCE 5 o/y prereq c/l. The metaphysical foundations of modern classical (Newtonian) science; contemporary views on the nature and limitations of scientific "explanations," the concepts of cause and chance.

312 (332) PHILOSOPHY OF LANGUAGE 5 e/y prereq c/l. Structure and functions of natural and ideal languages; the relations of language to thought and to reality.

320 CONTEMPORARY ETHICAL THEORIES 5 prereq 120 and 310, 312. Recent theories on the nature of moral concepts.

323 (309) POLITICAL PHILOSOPHY 5 o/y prereq 5 credits in philosophy. Basic concepts, ideals, and principles which underlie the political theories and programs of the Western world. Special attention will be given to Democratic forms of government and to the balance of liberal and conservative elements in them.

330 PHILOSOPHY IN THE TWENTIETH CENTURY 5 prereq 10 credits in Philosophy.

331 PHILOSOPHICAL FOUNDATIONS OF THE SOCIAL SCIENCES 5 o/y prereq 10 credits in Philosophy and c/l. Philosophical problems with respect to representative theories in Psychology, History, Sociology.

332 AESTHETICS 3 prereq 3 credits in Philosophy. The nature of aesthetic experience, of the standards of art criticism, and of the kinds of knowledge communicated by art. Readings from philosophers, artists, and art critics.

341 PHILOSOPHY IN LITERATURE 3 prereq 10 credits in Philosophy or Literature or =. Philosophical thought in selected masterpieces of literature.

345-346-347-348 PHILOSOPHY OF THE ARTS 3 credits in Philosophy or 3 credits in music, visual arts, literature or =. Enter any quarter. (345) Music. (346) Visual arts. (347) Literature. (348) Film. Examination of philosophical concepts related to the particular arts and discussion of the nature of the arts.

350 THEORY OF KNOWLEDGE 3 e/y prereq 10 credits in Philosophy. Some traditional and contemporary views of the source, nature, and extent of knowledge with special attention paid to the relation of perception to the physical world, and to the concept of mind.

351 METAPHYSICS 3 prereq 10 credits in Philosophy. What are the basic questions of Metaphysics? What questions does it attempt to answer? What questions is it fitted to answer? Traditional and contemporary pursuits of these questions.

354 PHILOSOPHY OF RELIGION 5 e/y prereq 5 credits in Philosophy. Philosophical interpretation of religious experience, belief and practice.

355 ORIENTAL THOUGHT 4 o/y prereq 5 credits in Philosophy and c/l. Philosophical themes in some Hindu, Buddhist and Taoist literature.

357 THE PHILOSOPHY OF HISTORY 5 e/y prereq c/l. The development, structure, and functions of the speculative and analytic philosophies of history. The philosophical history of the historical consciousness.

360 PLATO 5 e/y prereq 298 or 10 credits in Philosophy and c/l. Reading and interpretation of selected works.

361 ARISTOTLE 5 e/y prereq 298 or 10 credits and c/l. Reading and interpretation of selected works.

365 DESCARTES, SPINOZA, LEIBNIZ 5 e/y prereq 300 or 10 credits in Philosophy and c/l. The development of Continental Rationalism.

368 LOCKE, BERKELEY, HUME 5 o/y prereq 298 or 10 credits in Philosophy, and c/l. The development of British Empiricism.

367 Kant 5 o/y prereq 300 or 10 credits in Philosophy and c/l. Reading and interpretation of selected works.

370 MAJOR PHILOSOPHERS OF THE NINETEENTH CENTURY 5 e/y prereq 300 or 10 credits in Philosophy and c/l. Selection to be announced in the class schedule.

373 EXISTENTIALISM 5 prereq 10 credits in philosophy and c/l. Selected readings from the philosophical works of one or more existentialist thinkers.

390 PROBLEMS IN PHILOSOPHY V prereq c/l.

430 SEMINAR: HISTORY OF PHILOSOPHY V prereq c/l.

453 SEMINAR: PHILOSOPHY OF SCIENCE V prereq 210 and 310 and c/l.

460 SEMINAR: RESEARCH IN PROBLEMS OF PHILOSOPHY

490 SEMINAR V prereq c/l.

FOR GRADUATES

500 RESEARCH V R-15. Work on selected problems under direction.

690 THESIS V R-15.
PHYSICAL THERAPY

is an associated medical profession which includes the use of heat, cold, light, sound, electricity, massage, exercise, and mechanical devices as aids in the diagnosis and treatment of patients.

During the first three years the student completes 150 credits, 3 of which must be in required physical education activity courses. This work is to include the general requirements for graduation (the second and third years must be taken in residence at the University of Montana). The fourth or professional year of training, involving twelve to sixteen months of work, would be taken at any physical therapy school meeting standards established by the Council on Medical Education and Hospitals of the American Medical Association. (Not all therapy schools accept students with three years of background. Some schools, for example, require a college degree for admission, while other accept only students who plan to obtain a degree from the school offering the therapy work.)

Course work taken at the therapy school will be evaluated by the University of Montana. This evaluation must result in an accumulation of the equivalent of forty-five quarter hours of credit and sufficient grade points to meet the requirements for graduation. The student must be eligible for a certificate in physical therapy from the therapy school. When the above requirements have been satisfied, the student is eligible to become a candidate for the degree of Bachelor of Science in Physical Therapy from the University of Montana (see course listings of the physical education department for information regarding a four-year pre-physical therapy program.)

Many therapy schools specify that the applicant must not have reached his thirty-sixth birthday. In addition, some schools require a "C" or better for acceptance by a number of these schools.

The demand for physical therapistsfar exceeds the supply. Therapists may be found working in general hospitals, rehabilitation centers, children's hospitals, public health centers, geriatric hospitals, private clinics, Veterans Administration hospitals, orthopedic clinics, athletic training rooms, physicians' offices and school systems.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, the student needs algebra and trigonometry. It is also recommended that the high school preparation include college preparatory courses with emphasis on the biological and physical sciences.

Following are the requirements leading to the Bachelor of Science degree with a major in physical therapy:

<table>
<thead>
<tr>
<th>University and Departmental Requirements</th>
<th>Credits</th>
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<tbody>
<tr>
<td>English Composition 100, 200</td>
<td>9</td>
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<tr>
<td>Required Physical Education (3 quarters)</td>
<td>3</td>
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<tr>
<td>Major Requirements</td>
<td></td>
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<tr>
<td>Zoology 111, 113, 205</td>
<td>3</td>
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<tr>
<td>Microbiology 102</td>
<td>3</td>
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<tr>
<td>Chemistry 101, 102</td>
<td>3</td>
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<tr>
<td>Mathematics 116, 117</td>
<td>5</td>
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<td>Physics 111</td>
<td>5</td>
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<tr>
<td>Sociology 101, 102</td>
<td>4</td>
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<tr>
<td>Elect 2 credits, other than Soc 101, 102</td>
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<tr>
<td>from Group III</td>
<td>2</td>
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<tr>
<td>Elect 12 credits, at least 8 of which must be in one discipline, from Sup IV</td>
<td>12</td>
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<tr>
<td>Elect an additional course in physical science</td>
<td>2</td>
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<tr>
<td>Psychology 116, 301</td>
<td>3</td>
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<tr>
<td>Speech Communication 111</td>
<td>10</td>
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<tr>
<td>Speech Pathology and Audiology 330</td>
<td>3</td>
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<tr>
<td>Home Economics 146</td>
<td>3</td>
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<tr>
<td>Health and Physical Education 240, 290, 384 (380-385), 380, 397, 398, 399, 390 (2 quarters), 399, 400, 405, 406, 409, 570</td>
<td>45</td>
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<tr>
<td>Electives</td>
<td>7</td>
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<tr>
<td>School of Physical Therapy</td>
<td>45</td>
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<tr>
<td>Forty-five hours of credit</td>
<td>195</td>
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</tbody>
</table>

PHYSICS

is the science that has as its objective the formulation and verification of laws or relationships among the different physical quantities. Some of the most important of these quantities are mass, time, length, force, energy, momentum, electric charge, electric field strength, entropy, wave length. These quantities and the relations among them, that we call laws, have been found to serve in and to explain a wide range of phenomena such as occur in the subjects of mechanics, heat, electricity, magnetism, light, atomic and nuclear physics and in such related subjects as engineering, biophysics, meteorology and geophysics. In addition the subject of philosophy is profoundly influenced both by the methods and development of physics.

The Bachelor of Arts and Master of Arts degrees are offered.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, the student needs algebra and trigonometry. It is also recommended that the high school preparation include advanced algebra and geometry.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PHYSICS. In addition to the general requirements for graduation listed earlier in the catalog, fifty-five credits in physics must be earned for the Bachelor of Arts degree with a major in physics. In preparation for advanced courses, a student should take Physics 221-222-223 and some of the courses offered in other departments: Mathematics 121, 161, 152, 251, 252, 355. The foreign language requirement must be satisfied. English 100, 390 and 450 are required, except that students scoring less than the 31st percentile on the English section of the ACT test are required to take English 191 and students receiving 94th percentile or higher are exempt from English 100 and 300.

GRADUATE WORK. See Graduate School Bulletin.

FOR UNDERGRADUATES

For Explanation see Course Descriptions (Index)

111-112-113 GENERAL PHYSICS 5 (2-2) prereq for 111, Math 117. 111 is prereq for 112 and 113, but 112 is not prereq to 113. 111: Mechanics and wave motion. 112: Heat, electricity and magnetism. 113: Sound, light and atomic physics. For non-physical science majors. Credit not allowed for both 111-112-113 and 221-222-223.

221-222-223 GENERAL PHYSICS 5 (4-4) prereq for 221: Math 118 or 152. 221 is prereq for 222 and 223, but 222 is not prereq to 223. This course satisfies medical and technical school requirements in general physics. 221: Mechanics and wave motion. 222: Heat, electricity and magnetism. 223: Sound, light and atomic physics.

231-252-253 LABORATORY ARTS I (6-3) prereq 223. Open to upper division physics majors who have completed 223. Enter any quarter. Elements of glass blowing, machine shop practice, and electronic construction techniques.

FOR UNDERGRADUATES AND GRADUATES

301 (271) VECTOR ANALYSIS 3 (3-0) prereq 222 and Math 253.

314-315-316 ELECTRICITY A W 3 (3-0), S 4 (3-4) prereq 301.

322-323-324 LIGHT 2, A W 3 (3-0), S 3 (3-3) prereq 223 and Math 253.

328 METHODS OF TEACHING PHYSICS 3 (2-4) prereq 221, 222, 223. Texts, demonstrations and laboratory experiments used in contemporary approaches to teaching of high school physics. (Credit not allowed toward degree in physics.)

331 MECHANICS AND HEAT 5 (5-0) prereq enrollment in the N.S.F. Summer Institute in Mathematics. Other students may enroll by special permission.

332 ELECTRICITY RADIATION AND ATOMIC PHYSICS 5 (5-0) prereq enrollment in the N.S.F. Summer Institute in Mathematics. Other students may enroll by special permission.

341 FUNDAMENTALS OF MODERN PHYSICS 5 (5-0) prereq one year of general physics.

371-372-373 (471-472) MECHANICS 3 (3-0) prereq 301 and Math 253.

431 SELECTED TOPICS V 1-5 R-10 prereq c 1 and 15 credits in Physics.

441-442 ADVANCED LABORATORY 2 (1-2) prereq or coreq 254, 314. Experiments in fields of current progress in physics requiring individual student study and initiative.

446-447-448 (346-347-348) HEAT, THERMODYNAMICS, STATISTI-

cal MECHANICS 3 (3-0) prereq 223 and Math 253.

452-453 ATOMIC PHYSICS 3 (3-0) prereq 223 and Math 253.

454 NUCLEAR PHYSICS 3 (3-0) prereq 453.
POLITICAL SCIENCE

is the study of government and politics both in their domestic and international aspects. By meeting requirements outlined below, a student may earn a Bachelor's degree in Political Science, in Political Science and Economics, or in Political Science and History. A Master of Arts degree in Political Science is also offered.

Courses offered in the Political Science department are designed to aid students in attaining the following objectives:

1. To assist all students in securing a broad liberal education and to equip them with the foundations for effective discharge of the duties of American citizenship;
2. To provide undergraduate preparation for those students who propose to continue the study of Political Science at the graduate level with the ultimate goal college teaching and research;
3. To offer a broad program of training for those students who plan careers in government or politics, including training for both the foreign service and the domestic public service at the national, state and local levels;
4. To assist in preparing students for careers in teaching at both the elementary and secondary levels;
5. To provide a sound background for those students who intend to enroll in law and other professional schools.

The major fields of Political Science are (1) American Government and Politics with national, state and local government, politics, and public law as sub fields, (2) Public Administration, (3) Political Theory, (4) Comparative Government, and (5) International Relations, Organization and Law.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN POLITICAL SCIENCE. In addition to the general requirements for graduation listed earlier in the catalog, the following special requirements must be completed for the Bachelor of Arts with a major in Political Science: English 100 and 300 unless exempt by examination, Economics 201-202-203 and a minimum of 45 credit hours in Political Science with 30 credits from courses numbered 300 and over.

Political Science courses required of all majors are: 201, 202, 231 and 400, and one course in 3 of the 5 fields listed above.

A student may offer a combination major in Political Science and History with a minimum of 60 credits selected from the two disciplines of which at least 20 credits must be in Political Science and 20 credits in History. A minimum of 30 credits must be selected from courses numbered over 300.

A student may offer a combination major in Political Science and Economics with a minimum of 60 credits selected from the two disciplines: at least 27 credits must be in each discipline. Required courses are: Political Science 201, 202, and Economics 251, 252, 255, 301, and 311. At least 12 additional credits will be chosen from upper division economics courses and 13 additional credits from Political Science. Twelve hours of the Political Science work must be in upper division courses.

Either the completion of five quarters of a foreign language or the demonstration of a satisfactory reading knowledge of historical, legal or political science materials in such a language is required. With the consent of the Chairman of the Department the student may fulfill the language requirement by completing three quarters in each of two languages.

GRADUATE WORK. See Graduate School Bulletin.

FOR UNDERGRADUATES

For Explanation see Course Descriptions (Index)

*Courses offered alternate years.

101 INTRODUCTION TO POLITICAL SCIENCE 5. Issues and problems confronting the political system and the systematic study of politics as a discipline.
102 ELEMENTS OF LAW 2 prereq or coreq 101. Law as a system of social control; legal systems and law-making institutions.
201 (202) AMERICAN GOVERNMENT 5. Constitutional principles of government; government in the political process, including public opinion, interest groups, political parties, and elections; structure of the national government; congress, the presidency, and the courts.
202 (203) AMERICAN GOVERNMENT 5 prereq 201. Functions of the national government, including finance, business, labor, agricultural, conservation, national defense, foreign policy, and selected problems of public policy.
231 INTRODUCTION TO INTERNATIONAL RELATIONS 5. The nation-state system; development and organization of nation-states, blocs, international organizations; factors affecting stability and change in the system.

FOR UNDERGRADUATES AND GRADUATES

321 COMPARATIVE GOVERNMENT AND POLITICS 3 prereq 201. Schematic diplomatic/ideological analysis of government other than the United States, with emphasis on the parliamentary and modified parliamentary types of government in Great Britain and France.
322 COMPARATIVE GOVERNMENT AND POLITICS 3 prereq 221. Structure and politics of authoritarian and dictatorial forms of government with emphasis on the Soviet Union and China.
323 THE POLITICS OF MODERNIZATION 5 prereq 231. The process of political change, the role of violence, the nature of revolution, evolutionary change and government-engineered changes. Special reference to the cases of India, China, and Egypt.
325 POLITICS OF LATIN AMERICA 5 prereq 231. Structure of politics, government and authority in the developing area of Latin America.
335 AMERICAN FOREIGN POLICY 3 prereq 202 and 231. American foreign policy making and authority in the area of post-war problems confronting the political system and the systematic study of politics as a discipline.
341 (241) POLITICAL PARTIES 5 prereq 201. Nature and organization of political parties; conduct of nominations and political campaigns; role of party in the national and international political systems, with special emphasis on the American system.
342 (241) POLITICAL INTEREST GROUPS 3 prereq 341 or c/l. Interest groups in the political system; interaction of interest groups with public opinion, political parties, legislative bodies, executives, administrators, and the courts.
343 VOTING BEHAVIOR 3 prereq 341. The electorate and the election process; individual differences in and between voters; the significance of election results for the political system.
351 CLASSICAL POLITICAL PHILOSOPHY 5 prereq 101 or any 200 level course in Political Science. An exposition and critical analysis of the major political philosophers from Plato to Aquinas.
352 EARLY MODERN POLITICAL THEORY 5 prereq 101 or any 200 level course in Political Science. An exposition and critical analysis of the major political philosophers from Machiavelli through John S. Mill.
353 AMERICAN POLITICAL THOUGHT 5 prereq 351 or 352. An exposition and critical analysis of selected ideas and political thinkers relevant to political thought in the United States.
356 *LATE MODERN AND CONTEMPORARY POLITICAL THEORY 3 prereq 351 or 352. An exposition and critical analysis of the major political philosophers in the nineteenth and twentieth centuries.
361-362 PUBLIC ADMINISTRATION prereq 201. (361) 5. Legal and institutional setting of the administrative system; dynamics of organization and process in public administration; problems and techniques of administration illustrated by case materials and field investigation.
366 THE AMERICAN PRESIDENCY 3 prereq 201. The constitutional foundation and evolution of the executive branch, the structure of the office, executive functions and powers. Case studies of the problems of decision-making in the White House.
Students in Pre-veterinary Medicine and in Optometry are to plan their programs carefully. The University of Montana in order to ensure meeting the admission requirements to a School of Veterinary Medicine, or Optometry.

The successful pre-med student must do well in the basic sciences and other college work. He must master more than two years of college chemistry, and do well in college mathematics, physics, and zoology. To be considered by a School of Medicine the pre-med student must place high on the Medical College Aptitude Test which he ordinarily takes during his junior year. The same holds true for the pre-dent student who must do well in the American Dental Aptitude Test. Superior scholarship is of importance since medical and dental schools have more applicants than they can accept for admission.

HIGH SCHOOL PREPARATION. High school students who are contemplating a career in the Pre-medical Sciences curriculum at the University should plan on a program of high school studies which will include 3-4 years of mathematics, some Latin or several years of a modern foreign language, experience in Chemistry and Physics, and considerable background in literature and social science.

Pre-medical Sciences Student. The majority of medical schools now expect a broad background of knowledge, experience, and training on the part of applicants. The field in which a student receives his Bachelor's degree is not important provided he has the minimal course requirements in the Pre-medical Sciences, demonstrates a high level of competency, and is relatively well balanced.

Applicants for entrance to Schools of Medicine exceed the number that are admitted so well qualified, well motivated, well-balanced, and competent students are admitted to Schools of Medicine. Well qualified students from the University are usually accepted into Medical Schools. The Pre-medical Sciences student is advised to get a Bachelor's degree in a field of his own choice. However, he should make sure that he can satisfy within the time available (1) the University requirements for graduation, (2) the minimum pre-medical science requirements listed below, and (3) the major requirement in his chosen major field. The student should consult with the pre-medical sciences advisor during the freshman year, and consult with both the pre-medical sciences advisor and the major advisor beginning not later than the sophomore year in residence.

The Western Interstate Commission for Higher Education was designed to provide financial aid to Medical, Dental, Veterinary Medical, and other professional students attending Western professional schools.

Minimum Course Requirements for the Pre-medical Sciences Student. English, Physical Education, Group, and other University requirements listed earlier in the catalog; Chemistry through Organic, Quantitative, and Survey of Physical; one year of college mathematics; one year of college physics; Zoology through Embryology and Genetics; a reading knowledge or 23 credits in French, German, or Russian.

Special Requirements for the Bachelor of Arts Degree with a Major in the Pre-medical Sciences: In addition to the minimum course requirements listed immediately above the student must take Psychology 8-10 credits; 15 credits of an approved course of study in one field; and additional electives selected from the non-sciences to complete University credit requirements for graduation.

It is possible for the Pre-medical Sciences student who has satisfied course requirements specified above to earn a Bachelor's degree in a related field such as Chemistry, Mathematics, Microbiology or Zoology may be earned by completing course work in the area selected as approved by the Chairman of the major department concerned. See Chemistry and Zoology for degrees in those areas with the Pre-med Option.

Pre-medical Sciences Curriculum

(Dentistry, Medicine, Veterinary Medicine)

Freshman Year

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PRE-MEDICAL SCIENCES CURRICULUM

(Dentistry, Medicine, Veterinary Medicine)

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for graduation listed earlier in the catalog, a psychology major must complete at least 45 credits in psychology which must include Psych-HPER 290-Human Anatomy --------------------- --- ---

Engl Home Ee 146, 366—Elementary Nutrition, HPER 290-Human Anatomy --------------------- --- ---

HPER Speech Soc 101-Introductory Sociology Math 116-College Algebra ------------------- ------------ -- -Micro

Zoo! 202 - Human Physiology -------------------------- Speech

Microbiology

PRE-NURSING

The School of Nursing at Montana State University, Bozeman, accepts transfer students from the University of Montana who have completed one of two PRE-nursing programs listed below. (The three-quarter sequence is intensive and is recommended for only the best students.) Students with sophomore standing who desire admission to the School of Nursing, Montana State University, Bozeman, must plan to enter during Summer Quarter after completion of their freshman year. Students with sophomore standing wishing admission to a school of nursing other than that of Montana State University should consult the catalog of the school of their choice for the selection of a freshman program.

GRADUATE WORK. See Graduate School Bulletin.

PRE-NURSING, PSYCHOLOGY—69

FOR UNDERGRADUATES

For explanation see Course Descriptions (Index)

110 INTRODUCTION TO PSYCHOLOGY 5 (5-0). Introduction to the scientific study of behavior in man and animals, with emphasis on psychological processes such as sensation, perception, learning, motivation, etc.

111 INTRODUCTION TO EXPERIMENTAL PSYCHOLOGY 5 (4-2) prereq 110. Advanced general psychology. Experimental and quantitative methods employed in laboratory approaches to the scientific study of behavior.

190 PSYCHOLOGICAL INVESTIGATION V 1-3 R-5 prereq 110 and 190. Supervised investigation of psychological problems.

296 COMPARATIVE PSYCHOLOGY 5 (4-2) prereq 111. Behavioral biology and ethology of man and other animals.

212 PHYSIOLOGICAL PSYCHOLOGY 5 (4-2) prereq 111. Course(s) in zoology recommended. Basic neural regulatory mechanisms underlying behavior.

290 PSYCHOLOGICAL STATISTICS 5 (4-2) prereq 111 and Math 125. Application of statistical techniques to psychological data.

230 CHILD AND ADOLESCENT PSYCHOLOGY 5 (5-0) prereq 110. Behavioral development through adolescence, with emphasis on the research literature.

240 SOCIAL PSYCHOLOGY 5 (4-2) prereq 111. Individual behavior as a function of interpersonal interaction. Emphasis on research literature.

FOR UNDERGRADUATES AND GRADUATES

310 SENSORY PROCESSES AND PERCEPTION 5 (4-2) prereq 111.

311 LEARNING 5 (4-2) prereq 111. Principles involved in modifying behavior.

312 MOTIVATION 5 (4-2) prereq 111. Conditions which influence basic drives, incentives, and the development of complex motives.

342 PERSONNEL PSYCHOLOGY 3 (3-0) prereq 110. Selection, classification, and training: worker efficiency and adjustment problems.

343 INDUSTRIAL PSYCHOLOGY 5 (5-0) prereq 110. Applications of psychology in industry.

361 ABNORMAL PSYCHOLOGY 5 (5-0) prereq 110. Description and classification of abnormal orientations, with emphasis on their psychological dynamics.

390 PROBLEMS IN PSYCHOLOGY V R-9 prereq 15 credits in Psychology and c/l.

411 SYSTEMATIC PSYCHOLOGY 5 (5-0) prereq 310-311. Evaluation of the major psychological systems: Structuralism, Functionalism, Behaviorism, Gestalt, Psychoanalysis.

420 PERSONALITY DYNAMICS 4 (4-0) prereq graduate standing or senior with c/l. Principles of motivation, frustration, conflict, and defense mechanisms. Major emphasis on psychoanalytic dynamics.

451 INDIVIDUAL DIFFERENCES 3 (3-0) prereq 110. Nature and extent of individual and group differences.

480 MATHEMATICAL MODELS IN PSYCHOLOGY 4 (4-0) prereq 220 and 311 or c/l. Derivation and evaluation of some of the more complex models of learning, choice-behavior, and signal detection.

491 TOPICAL SEMINAR V R-6 prereq 15 credits in psychology and c/l. Topics of current interest with critical examination of the literature.

FOR GRADUATES

501-502-503 PROSEMINAR 8 (8-0) prereq graduate standing in psychology. Survey of the basic fields of psychology. (501) Learning, motivation and the unit processes; (502) Comparative, perception, physiological, and sensory. (503) Personality, psychopathology, and social.

505 PROFESSIONAL PROBLEMS IN PSYCHOLOGY 2 (3-0). Open only to graduate majors in psychology. Bibliographic problems and the literature search; forms and problems of scientific communication; professional associations, relations with other professions and the public; legal and ethical problems of the psychologist.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PSYCHOLOGY. In addition to the general requirements for graduation listed earlier in the catalog, a psychology major must complete at least 45 credits in psychology which must include Psy-

chology 110, 111, 220; four other laboratory courses, two of which must be 200 level courses: a minimum of three credits of 300 during the junior or senior year, and 411. Twenty-five of the 45 credits must be in courses numbered 300 or above. At least one English composition course, Math 125 and Zoology 111-112 or 113 and 202, are required. The major is strongly advised to take Math 344-345-346, all other mathematics courses that time and talent allow, at least eight credits in literature, work in anthropology, philosophy, sociology and additional work in zoology. The major preparing for graduate work in psychology is well advised to take Psychology 440 and 441. Those students with sufficient preparation and who show promise are encouraged to take some graduate courses during their senior year.

PSYCHOLOGY

is the science of the behavior of man and other animals. The psychologist, employing scientific methods, seeks to further the understanding and prediction of the behavior of living organisms. Today, psychologists perform important functions in most organizations, be they academic, business, government, health, military, or social service.

The department offers the Bachelor of Arts, Master of Arts and Doctor of Philosophy degrees. Although various jobs are available for those possessing the B.A. degree in psychology, those students interested in a career as a psychologist should plan to continue their education at the graduate level.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>510-515</td>
<td>History and Systems of Psychology 4 (4-0)</td>
<td>33</td>
<td>Development of concepts, systems, and theories in psychology.</td>
</tr>
<tr>
<td>520-522</td>
<td>Theories of Learning 4 (4-0)</td>
<td>12</td>
<td>Critical review of current learning theories based on analysis of fundamental concepts, experimental data, and theoretical implications.</td>
</tr>
<tr>
<td>530-532</td>
<td>Advanced Learning 4 (4-0)</td>
<td>15</td>
<td>Principles and methods pertaining to the acquisition and retention of new behaviors.</td>
</tr>
<tr>
<td>540-542</td>
<td>Thought Processes 4 (4-0)</td>
<td>12</td>
<td>Experimental and theoretical analysis of problem solving, concept formation, and other complex symbolic behavior.</td>
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<tr>
<td>550-552</td>
<td>Advanced Motivation 4 (4-0)</td>
<td>12</td>
<td>Drive, incentive and other affect variables as they influence performance.</td>
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<tr>
<td>560-562</td>
<td>Advanced Comparative 4 (4-0)</td>
<td>12</td>
<td>Directed towards a synthesis of existing data from various life forms into universal principles of behavior.</td>
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<tr>
<td>570-572</td>
<td>Laboratory Instrumentation 4 (2-4)</td>
<td>12</td>
<td>Design, construction, and use.</td>
</tr>
<tr>
<td>580-582</td>
<td>Advanced Psychological Statistics 4 (4-0)</td>
<td>12</td>
<td>Application of statistical procedures to the design of experiments; assumptions underlying techniques of sampling and measures of association and significance.</td>
</tr>
<tr>
<td>590-592</td>
<td>Advanced Developmental Psychology 4 (4-0)</td>
<td>12</td>
<td>Behavioral development through the life span. Emphasis on analysis of research and theoretical interpretation.</td>
</tr>
<tr>
<td>600-602</td>
<td>Interview and Case History Techniques 2 (1-2)</td>
<td>12</td>
<td>Clinically oriented. Client centered, supportive and consulting interviewing practiced. A behavioristic orientation toward case history taking is presented.</td>
</tr>
<tr>
<td>610-612</td>
<td>Advanced Social Psychology 4 (4-0)</td>
<td>12</td>
<td>Theory and experiment in the analysis of individual behavior in relation to social stimuli.</td>
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<tr>
<td>620-622</td>
<td>Advanced Sensory Systems and Perception 4 (4-0)</td>
<td>12</td>
<td>Symptoms, etiology, diagnostic criteria and treatment of the major functional and organic disorders; research literature.</td>
</tr>
<tr>
<td>630-632</td>
<td>Advanced Physiological Psychology 4 (4-0)</td>
<td>12</td>
<td>Brain mechanisms and behavior; electrophysiological correlates of behavior.</td>
</tr>
<tr>
<td>640-642</td>
<td>Clinical Psychology 4 (4-0)</td>
<td>12</td>
<td>A general survey of the field; types of cases handled by the clinician; techniques in evaluation and therapy; contributions in consultation, training and research.</td>
</tr>
<tr>
<td>650-652</td>
<td>Principles of Psychotherapy 4 (4-0)</td>
<td>12</td>
<td>Major theoretical and technical approaches to psychotherapy.</td>
</tr>
<tr>
<td>670-672</td>
<td>Topical Seminar V 1-3 R.</td>
<td>12</td>
<td>Advanced treatment of highly specialized topics of current interest.</td>
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<tr>
<td>680-682</td>
<td>Seminar in Measurement V 1-3 R.</td>
<td>12</td>
<td>Topics in learning, motivation, perception, and sensory processes.</td>
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<tr>
<td>690-692</td>
<td>Seminar in Experimental V 1-3 R.</td>
<td>12</td>
<td>Topics in history, systems, and theories in psychology, including theory construction.</td>
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<tr>
<td>700-702</td>
<td>Seminar in Clinical V 1-3 R.</td>
<td>12</td>
<td>Topics in clinical psychology.</td>
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<tr>
<td>710-712</td>
<td>Seminar in Comparative and Physiological V 1-3 R.</td>
<td>12</td>
<td>Topics in personality and social V 1-3 R.</td>
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<tr>
<td>720-722</td>
<td>Clinical Practicum 2 (0-4)</td>
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<td>Supervised practice of clinical techniques in a professional setting.</td>
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<td>730-732</td>
<td>Clinical Internship 6 R-12 prereq</td>
<td>12</td>
<td>Clinical experience in clinical supervision.</td>
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<tr>
<td>740-742</td>
<td>Advanced Psychotherapy 2 (3-0) R-4</td>
<td>12</td>
<td>A continuous and intensive study of the psychotherapeutic relationship and the various therapeutic techniques including supportive, client-centered, analytic, hypnotherapeutic.</td>
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<td>750-752</td>
<td>Advanced Clinical Practicum 2 (0-4) R-6 prereq</td>
<td>12</td>
<td>Directed experience in clinical supervision.</td>
</tr>
</tbody>
</table>
RELIGIOUS STUDIES

The proper sphere for the academic study of religions is understood to be coextensive with the broad field of humane learning in which the question of the humanity of man lies closest to the surface. It is intended that the study of religions in the University therefore be taken up in closest conjunction with the humanities, arts, letters, and the natural, social and life sciences. Radial relations are planned with existing departments in these areas, with regard both to curriculum and faculty.

In the course offerings of the Department two emphases are expected to prevail: first, the scholarly analysis and transmission of the enormous body of literature on the world's religions and, second, the sensitization of the student to the pertinence of religious studies for a critical and appreciative stance toward his personal and social existence. Thus courses are designed to liberate the student from the dominant, modern western and non-western cultures generally, and the American cultural situation in particular. The anticipated result will be liberating in the fundamental sense of the "liberal arts;" the student of religion will be afforded critical distance on his own religious tradition and at the same time liberated to appreciate the faith of his fathers and alien faiths on a new and richer plane.

Inaugurated in 1969, the Department is still in process of formation; thus a major in the Department and various degree programs have still to be formulated. The following list of courses is by no means complete and will be revised with the addition of faculty.

101-102 INTRODUCTION TO THE STUDY OF RELIGION 3. Enter either quarter. Religion as a humanistic discipline: the phenomenon of religion in relation to other aspects of culture and in relation to root human questions.

102 THE LEGACY OF PAUL 3. The life and letters of Paul: the structure of the Pauline understanding of the Christian faith; the legacy of Paul in literature and post-Reformation Christianity.

201-202 HISTORY OF THE ANCIENT NEAR EAST 3. Enter either quarter. Prehistoric and historical cultures of the Near East from the Neolithic period to the time of Alexander the Great (333 B.C. to A.D. 325). The 600-year period of Hellenistic civilization with special emphasis on the problem of cultural syncretism.


226 THE RISE OF HISTORICAL CONSCIOUSNESS IN THE ANCIENT NEAR EAST 3 prereq History 201 or R.S. 201. Mythology, mythography, ethnography and rule hierarchiology and their influence on Western civilization.

246 CHRISTIANITY AND MARXISM 3 prereq 5 credits of Political Science or c/i. Intellectual, social, and political engagement between representative forms of Christianity and Marxism, primarily in the west.

276 CONTEMPORARY THEOLOGY 3 prereq 3 credits in Philosophy or R.S. The thought of major Christian figures, Protestant and Roman Catholic, in the 20th Century.

311 THE BIBLE IN THE AMERICAN TRADITION 3 prereq History 261 and 262 or c/i. Primary documents in the history of American biblical interpretation: the relation of biblical interpretation to the development of American and broader cultural phenomena.

312 CONTEMPORARY BIBLICAL INTERPRETATION 3 c/i. Major biblical interpreters in the twentieth century.

327-328-329-330 RELIGION IN THE HELLENISTIC PERIOD 3 prereq History 201 and 202, or R.S. 201 and 202. Enter any quarter. The development of religious traditions of late antiquity, including an analysis of their loci in the wider Hellenistic context (327) Christianity (328) Judaism (329) Gnosticism (330) Graeco-Roman religions.

331 RHETORIC IN CLASSICAL GREEK AND SEMITIC LITERATURE 3 prereq R.S. 312 on Greek 211 and 212. Rhetoric from Gorgias and the Hebrew homily through Paul.

346 RELIGION AND SOCIAL REALITY 3 prereq 5 credits in sociology or c/i. Cultures and society from the standpoints afforded by various religious traditions.

347 HUMAN SPIRIT AND TECHNOLOGY 3 prereq 10 credits in physical sciences or c/i. The relation between "reverence" and "domination" in human societies: the role of technology will be used, but the emphasis will fall on modern industrial society.

348 GOD-LANGUAGE IN NINETEENTH CENTURY THOUGHT 3 prereq 10 credits in Philosophy or c/i. Theories of deity (especially the origins of the "death of God" idea) in 19th century Europe, especially in Hegel, Nietzsche, Feuerbach, Stirner, Marx, and Kierkegaard.
FLIGHT INSTRUCTION PROGRAM

The Flight Instruction Program is offered to all pilot qualified AFROTC cadets during their senior year. Successful completion leads to a private pilot license and entry into the U.S. Air Force Pilot Training Program.

ARMY ROTC

The Department of Military Science offers a two and a four-year program leading to a commission in the United States Army Reserve. The two-year program is based upon completion of the major or a specialization and university requirements for a baccalaureate degree.

The four-year program requires completion of Military Science courses during four years of attendance at the University. In addition, a six-week summer camp is included in the fourth year. Graduation from the four-year program satisfies the requirements for a commission as a second lieutenant in the U.S. Army.

FOUR YEAR PROGRAM

101-102-103 INTRODUCTION TO THE ARMY 2. (101) An introduction to the organization of the Army and an evaluation of Military Weapons Systems. Leadership, drill and command, basic and progressive training in leadership through practical exercise in drill, ceremonies and military customs and courtesies. (102) National Security and the United States Army with emphasis on the Army's role as part of the National Defense Team. Continuation of leadership, drill and command. (103) Continuation of National Security and the United States Army. Continuation of leadership, drill and command.

201-202-203 ADVANCED INDIVIDUAL TECHNIQUES 2 prereq 101-102-103. (201) Topographical recording techniques with emphasis on topographical mapping and leadership. Continuation of leadership, drill and command with emphasis on the duties and responsibilities of the junior leaders. (202) Computer programs of the U.S. Army. Continuation of leadership, drill and command. (203) Continuation of military science courses with emphasis on unit activities. Continuation of leadership drill and command.

204 SUMMER CAMP. No credit. Six weeks at an Army Training Center taken after completion of the first two years of college. Continuation of leadership, drill and command.

ADVANCED COURSE: OFFICER TRAINING

In the four year program, completion of the Basic Course is a prerequisite for admission to the Advanced Course. An applicant must pass a physical examination and the mental screening test prescribed by the Department of Military Science. In addition, the student is required to enroll and be listed in the U.S. Army Reserve. This enrollment may be canceled if the student withdraws from the University or for other specific reasons.

301-302-303 PRINCIPLES AND TECHNIQUES OF THE MILITARY LEADER 3. (301) Principles and techniques of leadership with emphasis on leadership and military training. Leadership, drill and command. (302) Principles and techniques of tactical operations with emphasis on small unit activities. Continuation of leadership, drill and command. (303) Principles and techniques of tactical operations with emphasis on small unit activities. Continuation of leadership, drill and command.

304 SUMMER CAMP. No credit. Six weeks at an Army Training Center taken after completion of the second year of college. Continuation of leadership, drill and command.

SOCIAL WELFARE

explores the ways in which social problems affect people; the agencies which help people deal with these problems; and the methods used in such endeavor. Social Welfare courses involve case records and some field work or observation in addition to regular class work. Broad studies in other social sciences are recommended.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE

Students who wish to: (1) prepare for employment in the social services; (2) prepare for entry into a graduate school of social work; (3) prepare for graduate education or helping professions; (4) prepare for intelligent and informed citizen participation in the solution of social problems.

REQUIREMENTS FOR THE UNDERGRADUATE DEGREE

The undergraduate major in social welfare is available for those who wish to: (1) prepare for employment in the social services; (2) prepare for entry into a graduate school of social work; (3) prepare for graduate education or helping professions; (4) prepare for intelligent and informed citizen participation in the solution of social problems.

The following requirements must be completed: SW 101 and 200. In addition, Soc. 101 and 201, or an acceptable equivalent in the area of social research must be taken. 3. Students are urged to take a wide variety of courses in the social and behavioral sciences. English 100 and 200 are required. Students scoring at or above the 93rd percentile on the ACT English examination will be exempt from this requirement. Those earning less than or below the 93rd percentile must pass English 99 or enter level English 100. Students who demonstrate in departmental course work substantial proficiency may be required to take additional courses. Students whose performance in the required Social Science courses is insufficient to meet the above requirements must be prepared to advise and counsel students who wish help in planning a program to meet their needs and goals.

THE SOCIAL WORK CERTIFICATION SEQUENCE. Students preparing for graduate social work education are urged to take those courses designed to secure employment as social work practitioners without such educational preparation may, upon completion of the requirements for a baccalaureate degree, secure a Certificate of Completion in the Social Work Sequence awarded by the Department for students who suc-
cessfully complete the following requirements: SW 181, 200, 340-341-342, 496 (12 credits); Anth 183; Soc 207; Speech Comm 110; and Psych 261 or H Ec 268 or 269. The completion of the Social Work Sequence is not required for students who wish a degree with a major in social welfare. It is an optional sequence available for social welfare majors interested in the behavioral and social sciences. Social welfare credits earned as a part of the Social Work Sequence may be counted toward a major in social welfare.

FOR UNDERGRADUATES

For Explanation see Course Descriptions (Index)

181 THE FIELD OF SOCIAL WELFARE 5. The range of social welfare activities and programs; basic value orientations as the organizing variables for the development of social welfare programs; the goals and relative efficiency of selected programs; and the relationship of the field of social welfare and the social work profession.

200 INTRODUCTION TO SOCIAL WORK PRACTICE 4 prereq 181. Social work as a professional practice concerned with helping individuals, groups, and communities; its goals, guiding philosophy, and basic assumptions. Major processes in social work practice.

FOR UNDERGRADUATES AND GRADUATES

340-341-342 SOCIAL WORK INTERVENTION 3 prereq 200. Theoretical, conceptual, and practical considerations for social work practice with different client populations. Requirements for successful intervention directed toward the change of: (340) individuals, (341) small groups, (342) complex organizations.

344 SOCIAL WELFARE POLICY AND SERVICES 4 prereq 181. Historical and philosophical review of social welfare systems in the United States and other countries. The nature and adequacy of different social welfare programs and services and major issues in social policy planning.

346 SELF ENCOUNTER AND PERSONAL GROWTH 4 prereq c/i. Utilization of small group interactional processes in developing individuals' self-knowledge, acquiring greater awareness of others, and identifying personal growth needs.

348 MANAGEMENT AND USE OF INFORMATION IN SOCIAL WORK 4 prereq 200. Basic skills necessary for social work practice in a wide variety of settings, including interviewing, data recording and retrieval techniques, and data analysis in relation to intervention planning.

374 THE ADMINISTRATIVE PROCESS IN SOCIAL WORK PRACTICE 3 prereq 200. Responsibilities of staff, executive, and board in defining and carrying out agency or department purposes and functions. The roles of administration, supervision, and support in the administrative process in relation to the social, cultural, psychological, and political forces operating in social welfare administration. The relation of administration to policy making, community planning, and social action. Personnel methods and standards.

471-472-473 SOCIAL WORK PRACTICE IN SPECIAL SETTINGS V R-12 prereq 340-341-342. Work with clients with particular handicaps, and school social work, including, in each case, examination of requisite specialized skills and knowledge, value systems, and principles of interpersonal communication. (See Sociology-73: Anthropology 153 and one upper division Anthropology course must be taken. Students must take Math 601 or be exempt through examination. Students planning to undertake graduate work should also take Sociology 205 and 314 and Anthropology 512, English 100 and 300 are required. Students scoring at or above the 53rd percentile on the ACT English examination will be exempt from this requirement. Those at or below the 31st percentile must pass English 601 before entering English 100. Students who demonstrate in departmental course work substantial proficiency may be required to take additional courses in English composition.)

COMBINED MAJOR. For the combined major leading to the degree of Bachelor of Arts in Sociology and Economics the following course requirements must be completed: Soc 204 and at least 12 additional credits of upper division sociology. The range of social work practice and basic concepts as applied to social science and social work major students and other students majoring in the behavioral sciences; the goals and relative efficiency of selected programs; and the relation of administration to policy making, community planning, and social action. Personnel methods and standards.

483 SOCIAL WORK LABORATORY V 2-4 R-12 prereq 181. A program of self-help project experiences in dealing with community needs and resources. Theoretical analysis of experienced situations. Learning by means of the laboratory method.

485 INDEPENDENT STUDY V 1-2 R-6 prereq c/i.

489 SEMINAR V R-9 a/y prereq 15 credits in social welfare.

499 FIELD WORK PRACTICUM V R-12 prereq 181, 200, and either previous completion or concurrent enrollment in 340, 341, or 342; concurrent enrollment in 489, Practicum Seminar, is also required. Field work or internship, under supervision, in public and private agencies and institutions.

502 ADVANCED RESEARCH METHODS (see Sociology)

Courses 539, 549, 559, 569, 570 will be offered only by off-campus extension.

530 ADVANCED SOCIAL WORK THEORY 4 prereq graduate standing.

540 THE SUPERVISORY PROCESS IN SOCIAL WORK 4 prereq experience in social welfare work and graduate standing.

550 BEHAVIORAL AND SOCIAL SCIENCE CONCEPTS FOR SOCIAL WORK 4 prereq graduate standing.

560 ADVANCED SOCIAL WORK INTERVENTION 4 prereq graduate standing.

570 TOOLS OF SOCIAL WELFARE PLANNING 4 prereq gradu­ate standing, social work major.

589 FIELD WORK PRACTICUM (see Sociology).

SOCIOLOGY

is a social science concerned with relationships which link man with his institutions and his society. Sociology is also a profession which offers various services to businesses, governmental, and other agencies seeking help in developing desired relationships among their members. The degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy are offered in sociology.

SPETIAL REQUIREMENTS FOR THE UNDER­GRADUATE DEGREE. In addition to the general requirements for graduation listed earlier in the catalog, the following additional courses are required for the Bachelor of Arts degree. A foreign language is required. (See foreign language requirement in the general section of the catalog.) The 45 credits in sociology must include the following courses: Soc 101, 201, 207 or 208, 310, 401 and 402. In addition, Anthropology 153 and one upper division Anthropology course must be taken. Students must take Math 601 or be exempt through examination. Students planning to undertake graduate work should also take Sociology 205 and 314 and Anthropology 512, English 100 and 300 are required. Students scoring at or above the 53rd percentile on the ACT English examination will be exempt from this requirement. Those at or below the 31st percentile must pass English 601 before entering English 100. Students who demonstrate in departmental course work substantial proficiency may be required to take additional courses in English composition.

COMBINED MAJOR. For the combined major leading to the degree of Bachelor of Arts in Sociology and Economics the following course requirements must be completed: Soc 204 and at least 12 additional credits of upper division sociology. The range of social work practice and basic concepts as applied to social science and social work major students and other students majoring in the behavioral sciences; the goals and relative efficiency of selected programs; and the relation of administration to policy making, community planning, and social action. Personnel methods and standards.

204 COURTSHIP AND MARRIAGE 2. Factors in courtship and marriage. (Credit not allowed toward a degree in sociology.)

205 ELEMENTARY SOCIAL STATISTICS 5 prereq Math 601 or exemption by examination and 5 credits in sociology or c/i. Simple statistical and graphic techniques commonly used in the social sciences.

207 INTRODUCTION TO SOCIAL CHANGE 5 prereq 5 credits in sociology or c/i. An examination of the forces of change in social organizations and relationships.

208 (301) INDIVIDUAL AND SOCIETY 5 prereq 5 credits in sociology or c/i. An examination of the forces of change in social organizations and relationships.

209 (302) THE FAMILY 5 prereq 10 credits in sociology or c/i. Comparative, historical, and analytical study of the family.

210 CRIMINOLOGY 5 prereq 10 credits in sociology or c/i. The causes, prevention, detection, and correction of crimes.

211 SOCIOLOGIATION 3 prereq 10 cr. in Sociology including 208 or c/i. Processes and products of social learning.

212 RACE AND ETHNIC RELATIONS 3 a/y prereq 101 and Anth 156. Racial and ethnic differentiation and its social consequences. (Credit not given for both Soc 308 and Anth 307.)

213 INTRODUCTION TO COMPLEX ORGANIZATIONS 4 prereq 10 credits in sociology or c/i. Bureaucracies and bureaucraticization in modern society.

214 DEVELOPMENT OF SOCIAL THOUGHT 5 prereq 10 credits in sociology or c/i. Social thought from earliest times to the establishment of sociology.

311 (S W 281) JUVENILE DELINQUENCY 5 prereq 10 credits in sociology or c/i. Nature and extent of the problem. The role of courts, social agencies, and schools in its prevention and treatment.

SOCIOLOGY—73
SPEECH COMMUNICATION is that branch of the behavioral sciences concerned directly with human message systems. Courses in speech communication emphasize theoretical conceptions of the nature, production, use, and role of messages in life and society, and applications of these conceptions to interpersonal, public and organizational communication.

Undergraduates are awarded the Bachelor of Arts degree in Speech Communication, but may select one of several emphases, depending upon their interests. Students interested in teaching may select either the Teaching Communication Skills emphasis or the Speech Communication Education emphasis; students interested in entering business, industry, government or graduate school, and/or desiring a liberal arts background, may select the Special Communication emphasis.

Graduate students are awarded a Master of Arts degree or a Master of Speech Communication degree (see Graduate Bulletin).

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE. In addition to the general requirements for graduation listed earlier in the catalog, the student must complete a minimum of 45 credits and not more than 70 credits in Speech Communication. All students majoring in this department are required to complete a core of 30 credits in speech communication.

GREAT PROGRESS REQUIREMENTS FOR THE UNDERGRADUATE DEGREE in addition to the general requirements for graduation listed earlier in the catalog, the student must complete a minimum of 45 credits and not more than 70 credits in Speech Communication. All students majoring in this department are required to complete a core of 30 credits in speech communication.
TEACHING COMMUNICATION SKILLS

<table>
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<tr>
<th>Freshman</th>
<th>Cr.</th>
<th>Sophomore</th>
<th>Jour</th>
<th>300 - Upper Division Composition</th>
<th>Jour</th>
<th>310 - Introduction to Systems of Communication</th>
<th>Engl 100 - Lower Division Composition</th>
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<tbody>
<tr>
<td>SpCo 236 - Speech Criticism</td>
<td>3</td>
<td>Engl 300 - Upper Division Composition</td>
<td>3</td>
<td>Engl 371 - Structure of Modern English</td>
<td>3</td>
<td>SpCo 341 - Discussion and Small Groups</td>
<td>SpCo 355 - Message Composition</td>
</tr>
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<td>SpCo 233 - General Semantics</td>
<td>3</td>
<td>Jour 315 - School Publications</td>
<td>3</td>
<td>Jour 335 - Magazine Article Writing</td>
<td>3</td>
<td>Engl 355 - Creative Writing</td>
<td>SpCo 441 - Rhetorical Theory</td>
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Note: Course requirements in Education to meet teacher certification are listed under Education.

FOR UNDERGRADUATES

For Explanation see Course Descriptions (Index)

110 INTRODUCTION TO SYSTEMS OF COMMUNICATION 5. Theory and evidence relevant to interpersonal and intrapersonal systems of communication. The role of language in human interaction.

111 INTRODUCTION TO PUBLIC SPEAKING 3. The theories and principles of public speaking. Practice in preparation, delivery and criticism of speech.

112 ARGUMENTATION 5. The principles by which belief and conduct are influenced through appeals to logical reasoning. Evidence, analysis, logic, fallacies, rebuttal, and their application to current economic, social and political problems.

115 PERSUASIVE COMMUNICATION 4. Attitude and behavior modification primarily by oral communication.

118 PRACTICUM IN ORAL EXPRESSION 3 (2-3). Principles of vocal expression, articulation and diction, with practical application through recording and evaluation.

119 PHONETICS 2 (2-1). (See Speech Pathology and Audiology.)

222 (123) PUBLIC SPEAKING PRACTICUM 5 (0-4) prereq 111. Practice in speech composition, delivery and criticism beyond that introduced in Speech-Communication 111.

223 INTRODUCTION TO COMMUNICATION: PHONOLOGY 5 (4-2). (See Speech Pathology and Audiology.)

233 INTRODUCTION TO COMMUNICATION: AUDIOLOGY 5 (4-2). (See Speech Pathology and Audiology.)

234 INTRODUCTION TO COMMUNICATION: PROCESS 5 (5-0). Major concepts and principles relevant to the nature and use of signs and symbols in the total process of communication, with particular reference to meaning.

265 FORENSICS 1 R-6. Preparation of debates, orations, extemporaneous and impromptu speeches, and other types of public address.

301 HISTORY OF THE FIELD OF COMMUNICATION 3. The major lines of influence leading to present theories, concepts and methods in the field of oral communication.

313 CONFERENCE LEADERSHIP 2. Methods and procedures of conducting meetings, including the use of parliamentary procedure.

314 (214) DISCUSSION AND SMALL GROUPS 3. The processes involved in informal small-group interaction. Includes theory and evidence related to concepts of leadership, communication patterns, group cohesion and social pressure.

316 COMMUNICATION IN ORGANIZATIONS 4. Intra-organizational problems. Theory and research on questions of informational and directive communication as related to such factors as channels, structures, status, involvement, morale.

335 COMMUNICATION DISORDERS I 5 (5-1) prereq 119, 232, 233, and 234. (See Speech Pathology and Audiology.)

336 COMMUNICATION DISORDERS II 5 (5-1) prereq 235. (See Speech Pathology and Audiology.)

337 COMMUNICATION DISORDERS III 3 (3-1). (See Speech Pathology and Audiology.)

351 DEVELOPMENTAL SEMIOLOGY 3 prereq 118, 232, 233, 234. (See Speech Pathology and Audiology.)

353 GENERAL SEMANTICS 3. The influence of language and language habits on perception, evaluation and decision; particular attention to the concepts of structure and meaning.

SPEECH COMMUNICATION—75

355 MESSAGE COMPOSITION 3 prereq 111. Preparation of oral messages, with emphasis on organization and language choice.

356 SPEECH CRITICISM 2. The bases upon which the various forms of public speaking are evaluated.

361 (261) ORAL INTERPRETATION 3 (2-3). The analysis and oral presentation of literature.

371 SOCIODRAMA 3. Principles and practice of role-playing as a technique of communication.

383 LANGUAGE AND CULTURE 3. (See Anthropology.)

FOR UNDERGRADUATES AND GRADUATES

419 ADVANCED PHONOLOGY 3 a/y. (See Speech Pathology and Audiology.)

420 MOTOR AND PERCEPTUAL PHONETICS 4 (3-2) a/y. (See Speech Pathology and Audiology.)

422 (421) TEACHING SPEECH IN THE SECONDARY SCHOOL 3 prereq 18 credits in Speech Communication. Planning the speech curriculum and its relationship to other school subjects; instructional materials and methods of teaching speech.

430 BUSINESS AND PROFESSIONAL INTERVIEWING 3. Theory and practice of communication behavior in dyadic situations as confronted in business, education, and professions. Experience in informational, employment, and decision-making interviews.

443 (343) ADVANCED PUBLIC SPEAKING 3 prereq 111 and 335 or c/l.

444 (344) RHETORICAL THEORY 3. The historical development and current status of rhetorical theory.

445 HISTORY OF AMERICAN PUBLIC ADDRESS 3 prereq c/l. Critical analyses of speeches of historically prominent American speakers and issues with which they were identified.

446 HISTORY OF BRITISH AND EUROPEAN PUBLIC ADDRESS 3. Critical analysis of speeches of historically prominent British and European speakers and the issues with which they were identified.

451 PSYCHOLINGUISTICS 3 a/y prereq 234. Recent theories and evidence concerned with the empirical analysis of linguistic behavior. (Credit not allowed for this course and SPA 451.)

462 DIRECTING THE FORENSIC PROGRAM 3. Philosophy, organization, and administration of competitive speech activities.

469 (369) ADVANCED ORAL INTERPRETATION 3 prereq 361 or c/l.

480 LINGUISTIC METHODS 3. (See Anthropology.)

490 PROBLEMS V R-6.

497 INTRODUCTION TO GRADUATE AND PROFESSIONAL PROGRAMS 2 prereq 15 credits in Junior and senior level Speech Communication or c/l. The basic approaches to graduate and professional activities.

FOR GRADUATES

511 THEORIES OF COMMUNICATION 3 prereq c/l. A critical evaluation of theories and research in the field of communication.

512 ORGANIZATIONAL COMMUNICATION 3 prereq c/l.

514 SMALL GROUP COMMUNICATION 3 prereq c/l.

519 SEMINAR: COMMUNICATION MEASUREMENT 3 prereq Statistics.

521 INFORMATION AND COMMUNICATION 3 prereq c/l. The nature and function of information in human communication systems.

522 SEMINAR: SPEECH COMMUNICATION EDUCATION 3. prereq 422 or c/l.

541 PERSUASION 3 prereq c/l. Theories and research concerned with the processes by which behavioral and attitudinal change are produced primarily by communication.

545 SEMINAR: SPEECH CRITICISM 3 a/y prereq c/l.

551 CONTEMPORARY PUBLIC ADDRESS 3 a/y prereq c/l.

553 SEMINAR: HISTORY OF RHETORIC AND PUBLIC ADDRESS 3 a/y prereq c/l.

571 SOCIODRAMA 3 a/y c/l.

588 COMMUNICATION PRACTICES 3. (See Business Administration)

597 RESEARCH METHODS AND MATERIALS 5 prereq Statistics. Principles and techniques of quantification and design in communication research. Practice in the techniques of professional writing.

599 TOPICAL SEMINAR V R-9 prereq c/l.

600 RESEARCH V R-10 prereq c/l.

699 THESIS V R-12.
SPEECH PATHOLOGY AND AUDIOLOGY
represents an integration of disciplines among social and life sciences concerned with the processes by which people communicate and with difficulties arising in these processes. Study in this field is designed to provide a deeper understanding of the processes, resources, facilities and disabilities of human communication.

Although students take the Bachelor of Arts degree in Speech Pathology and Audiology, this is a professional degree and is not intended to prepare a student for employment in the field. For students intending to engage in professional clinical work, it is recommended that requirements for professional clinical certification by the American Speech and Hearing Association be met. Persons receiving the degree, Master of Speech Pathology and Audiology, may or may not meet certification requirements depending on their professional goals. Professional employment opportunities for persons receiving graduate degrees in Speech Pathology and Audiology include clinical service centers, hospitals, public schools, health departments, colleges and universities, industrial programs, research centers, and private practice.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE. In addition to the general requirements for graduation listed earlier in the catalog, the student must complete a minimum of 45 credits and not more than 70 credits in Speech Pathology and Audiology. All students majoring in the Speech Pathology and Audiology program are required to complete a core curriculum as follows: Speech Communication 111, 114, and 115; Speech Pathology and Audiology 100, 101, 119, 232, 233, 335, 336, 337, 338, 341, 342, 351, 380, and 423 (4 credits); Anthropology 152 or 153; English 335, 336, 337, and 341; Psychology 100 and 150; Speech Communication 335; Sociology 311; Psychology 310 and 212; Zoology 202; and 3 credits each in Normal Development of the Child Philosophy and Statistics.

SUGGESTED PROGRAM FOR UNDERGRADUATES

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<tr>
<td>SPA 335, 336, 338</td>
<td>3</td>
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<tr>
<td>SPA 341, 342</td>
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<td>SPA 380</td>
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<tr>
<td>SPA 331, SpCo 333</td>
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<td>SPA 423</td>
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<tr>
<td>Electives</td>
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<tr>
<td>16-17</td>
<td>14-16</td>
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<table>
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<tr>
<th>Senior</th>
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<tbody>
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<td>Psych 220 or Soc 205</td>
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<td>Electives</td>
<td>9-11</td>
<td>12-14</td>
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<tr>
<td>14-16</td>
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</tbody>
</table>

GRADUATE WORK. See Graduate Bulletin.
WILDLIFE BIOLOGY—77

The Wildlife Honors curriculum is designed particularly for students with strong academic records who intend ultimately to work toward a doctorate. Entrance into this option is open only to students at the beginning of their junior year who have a 3.0 GPA and who petition the staff for entrance.

This university is particularly well suited for instruction in this area of learning because of the excellent opportunities for field instruction and research, and the presence of such facilities as the Biological Station, the Montana Forest and Conservation Experimental Station, and the Montana Cooperative Wildlife Research Unit.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University the student should elect four years of mathematics in high school.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN WILDLIFE BIOLOGY. In addition to the general requirements for graduation listed earlier in the catalog, the student must complete the requirements as listed for one of the three options indicated below. Note that a study of foreign language is required only in the Wildlife Honors option.

CURRICULA IN WILDLIFE BIOLOGY

Freshman Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>A</td>
<td>Botany-Zoology 111—General Biology</td>
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<td></td>
<td>Botany 114, 116—General Botany</td>
<td>S</td>
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<tr>
<td></td>
<td>Chemistry 101, 102—General Survey, Organic</td>
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<tr>
<td></td>
<td>English* 100—Lower Division Composition</td>
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</tr>
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<td></td>
<td>Math 110—Algebra, Trigonometry, Introduction to Calculus</td>
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<tr>
<td></td>
<td>Zool-Boot-For 170—Survey of W.L. Careers</td>
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<td>Group Requirements and Electives</td>
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<tr>
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<td>HPER—Physical Education</td>
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<tr>
<td></td>
<td>16-18 16-18 16-18</td>
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</tbody>
</table>

*Entrance into and/or exemption from these courses will be determined by placement scores.

Sophomore Year

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>B</td>
<td>Zool 113, 112—General Zoology</td>
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<tr>
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<td>Bot 325—Plant Physiology, Systematic Botany</td>
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<tr>
<td></td>
<td>Math 129—Statistics</td>
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</tr>
<tr>
<td></td>
<td>SpCo 111—Introduction to Public Speaking</td>
<td>Cr</td>
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<tr>
<td></td>
<td>Bot-Zool 221—Basic Concepts of Ecology</td>
<td>Cr</td>
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<tr>
<td></td>
<td>Bot-Zool 251—Ecology Lab</td>
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<td>Physics 111, and 112 or 113—General Physics</td>
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<td>Group Requirements and Electives</td>
<td>0-2 3-8</td>
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<td>16-18 16-18 16-21</td>
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Junior Year

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>C</td>
<td>Zool 300, 308—Mammalogy, Ornithology</td>
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<td>Zool* 202—Human Physiology</td>
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<td></td>
<td>For 300—Range Management</td>
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<td>For 220—Technical Writing</td>
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<td>Engl 300—Upper Division Composition</td>
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<td>Group Requirements and Electives</td>
<td>8-7 15-18 2-3</td>
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<td>15-18 15-18 15-18</td>
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Senior Year

<table>
<thead>
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<tbody>
<tr>
<td>D</td>
<td>For 470, 471, 472—Advanced Wildlife, Big Game, Habitat</td>
<td>3 5</td>
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<td>Bot 355—Plant Ecology</td>
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<td></td>
<td>Zool* 331—Comp. Physiology</td>
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<td></td>
<td>Zool 410—Advanced Animal Ecology</td>
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<td>Zool 405—Animal Behavior</td>
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<td>Zool Bot For 491, 492, 493—Sr. Wildlife Seminar</td>
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<td>Group Requirements and Electives</td>
<td>0-7 1 4-7</td>
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<td>15-18 15-18 15-18</td>
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</table>

*Zool 340, 341 may be elected in place of Zool 202, 331.

Sophomore Year

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>E</td>
<td>Zool 113, 112—General Zoology</td>
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<tr>
<td></td>
<td>Bot 325—Plant Physiology</td>
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<tr>
<td></td>
<td>Chem 125—Qualitative Analysis</td>
<td>S</td>
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<td></td>
<td>Math 129—Statistics</td>
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<tr>
<td></td>
<td>SpCo 111—Introduction to Public Speaking</td>
<td>0-3 0-3</td>
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<tr>
<td></td>
<td>Bot-Zool 220—Basic Concepts of Ecology</td>
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<td>Bot-Zool 251—Ecology Lab</td>
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<td>Physics 111, and 112 or 113—General Physics</td>
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<td>15-18 15-18 17-18</td>
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</tr>
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</table>

(SpCo 111 and/or Engl 300 could be taken Spring Junior Year.)
### ZOOLOGY

Zoo 310—Ichthyology
Zool 330, 341—Cellular and Comp. Physiology
Chem 245—Quantitative Analysis
Bot 385—Plant Ecology
Bot 385—Systematic Botany
For 285—Hydrologic Principles
For 231—Principles of Technical Expression

**Group Requirements and Electives**

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<tr>
<th>Quarter</th>
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<td>7-9</td>
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<tr>
<td>10-12</td>
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</table>

One summer at the University of Montana Biological Station (or other Biological Station) enrolled in Zoology 461, Limnology, and Botany 366, Aquatic Insects. Honors students may be chosen from either of the Aquatic or Terrestrial Wildlife groups or any one course from Microbiology or from Botany or one course from Zoology 306, 308, 309, 310: (4) Physiology 200, 230, 250, 260, 290, 341, 360; (5) Ecology 307, 405, 410, 420, 421; (6) Genetics 465.

Students may substitute Chem 361, 362 for either group 3 or 4. The following must also be completed: Botany 114-115; Chemistry 121-122-123; Mathematics 116, 117, 118; Physics 111-112-113 or 121-122-123; English 100 and 300. English 490 recommended.

The foreign language requirement listed earlier in the catalog must be satisfied. Normally Zoology majors take 5 quarters of French, German or Russian. Other languages or combinations must be approved by the department.

The Pre-medical Sciences student may earn a degree in Zoology by completing requirements in that curriculum and presenting a total of 35 credits in Zoology or related fields as follows: Zoology 111, 112, 118, 404, 485: any one course from Zoology 200, 230, 250, 260, 310, 321, 331, 340, 360, 364, 366, 405, 420, 421; any one course from Microbiology or from Botany or one course from Zoology 200, 304, 309, 313, 325, 334, 340, 341.

Senior examinations are given only to candidates for honors.

**GRADUATE WORK.** See Graduate School Bulletin.

**SUGGESTED CURRICULUM IN ZOOLOGY**

<table>
<thead>
<tr>
<th>Freshman Year</th>
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<tr>
<td>English 109—Lower Division Composition</td>
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<td>Math 116, 117, 118—College Algebra, Trigonometry and Introduction to Calculus</td>
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<td>Zoology 111, 115, 119—Introduction to Biology, General Zoology</td>
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<td>HPER 101—Physical Education</td>
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<td>Chem 121-122-123—College Chemistry</td>
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<td>Foreign Language 101-102-103—Elementary French, German or Russian</td>
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<td>English 201—Upper Division Composition</td>
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<tr>
<td>Foreign Language 211-212—French, German, or Russian Readings</td>
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<td>Physics 111-112-113 or 221-222-223—General Physics</td>
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<tr>
<td>Cr.</td>
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<td>Botany 114, 115—General Botany</td>
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<td>Zoology 429—Biological Literature</td>
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<td>Zoology Advanced Courses or Chem 261, 262</td>
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<td>9-10</td>
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Introduction to Biology 5 (3-4). Basic principles of biology, including aspects of cell structure and metabolism, genetics, origin of life and methods of evolution and adaptation. (Credit not allowed for both Bot 111 and Zool 111.)

112-113 General Zoology 5 (3-4) prereq 111 or Bot 111 or . A comparison of structure, function, and life histories of selected invertebrates and vertebrates. (Generally taken as a sequence including 111, 112-113.)

170 Survey of Wildlife Careers 1 (1-0) (cross listed as Forestry and Botany 170).

202 Human Physiology 5 (3-4) prereq sophomore standing with at least one science course or two quarters of college zoology. The normal physiology of blood circulation, respiration, digestion, excretion, irritability, locomotion, coordination, and reproduction.

266 Field Zoology 3 (2-5) prereq 113. Collection, identification, and use of methods in the study of invertebrates and vertebrates, including mollusks, echinoderms, annelids, and arthropods. Field trips.

260 (250) Basic Concepts of Ecology 3 (3-0) prereq one year of college biology. Ecological principles with emphasis on the ecosystem. (Credit not allowed for this course and Bot 250.)

251 Elementary Ecology laboratory 2 (0-4) prereq or coreq 250. Population biology, including case studies emphasizing the principles of physical and biotic factors on population structure, density, and productivity and on community organization. Theoretical as well as practical aspects are considered. Weekend field trips.

413 Fishery Science 3 (3-6) prereq 307, 310. The problems involved in fisheries biology with an analysis of, and emphasis on, actual field science in, methods employed in attacking these problems. Field trips.

428 (228) Invertebrate Zoology 5 (2-8) e/y prereq 206, Bot 205 or . Zool 307 or 311, 312 recommended. The relationships between the invertebrates and vertebrates with special emphasis on the invertebrates. Saturday field trips.

429 Biological Literature 1 (2-0) prereq 20 credits in botany or zoology. Students report of literature of the trend of investigation and experimentation in botanical and zoological fields.

431 Problems in Invertebrate Morphology and Taxonomy V 1-5 prereq 25 credits in zoology including adequate background courses in the subject and c/i. Main emphasis. By variation of content, the course may be repeated during succeeding quarters.

432 Problems in Invertebrate Physiology V 1-5 prereq 25 credits in zoology including adequate background courses in the subject and c/i. Main emphasis. By variation of content, the course may be repeated during succeeding quarters.

433 Problems in Invertebrate Physiology V 1-5 prereq 25 credits in zoology including adequate background courses in the subject and c/i. Main emphasis. By variation of content, the course may be repeated during succeeding quarters.

434 Problems in Invertebrate Physiology V 1-5 prereq 25 credits in zoology including adequate background courses in the subject and c/i. Main emphasis. By variation of content, the course may be repeated during succeeding quarters.

435 Problems in Invertebrate Physiology V 1-5 prereq 25 credits in zoology including adequate background courses in the subject and c/i. Main emphasis. By variation of content, the course may be repeated during succeeding quarters.

442 Biology of Forest Insects 3 (3-0) prereq Zool 113. Biology and biornecics of insects, including structure, function, systems, genetics, theory, and the need for consideration of insect ecology. Joint listed as Forestry 432 .

443 Forest Insect Ecology 3 (3-0) prereq Zool 432. Ecological role of insects significant in the total forest ecosystem; factors which regulate the distribution and abundance of insect population components; practical uses of development of control principles of biological control. Joint listed as Forestry 433.

450 Marine Invertebrates 3 (1-3) prereq 436, a problem in marine biology. The systematics and ecology of marine invertebrates, with particular reference to the invertebrates of the Pacific Coast. (A 3-day trip to coast of Oregon or Washington required.)

451 Limnology 6 (5-25) prereq 113 and Chem 123. Ecology of lakes, streams and ponds with emphasis on the physical, biological, and chemical factors which determine their biological productivity. (Course not given for both Zool 485 and Bot 486.)

456 (360) Genetics 5 (3-0) prereq 113 or Bot 255. The mechanism of recombination, inheritance of linkage systems, chromosomal aberrations, extra-chromosomal inheritance, and their relationship to mutation and function. Credit not given for both Zool 485 and Bot 486.

460 Evolution. (See Botany.)
487 CYTOGENETICS 5 (3-2) prereq 485 or =. The structure and design of chromosomes from bacteria to higher organisms. Chromosome behavior and changes and their role in development and evolution. Cross-list with Botany.

490 SEMINAR IN BIOLOGY 1 (2-0). Credit not allowed for this course and Bot 490.

491-492-493 SENIOR WILDLIFE SEMINAR 1 prereq senior standing in Wildlife Biology or Forestry. Reports and discussion by students, faculty, and guests speakers on current topics in Wildlife Biology. (Double-listed as Forestry 491-492-493.)

FOR GRADUATES

500 SEMINAR 1 prereq graduate standing in a biological science.

501 AREAS AND CONCEPTS OF ZOOLOGY 1 prereq graduate standing in Zoology or in Wildlife Biology. An orientation course for all new graduate students in zoology.

502 HISTORY AND DEVELOPMENT OF BIOLOGICAL CONCEPTS 3 (3-0) prereq graduate standing in a biological science. Credit not allowed for this course and Bot 502.


504 ADVANCED ANIMAL BEHAVIOR 5 (2-6) prereq 405 or c/i. The causation and function of normal behavior with emphasis on the experimental approach to the study of behavior. Ecological aspects of behavior.

505 ACAROLOGY 5 (3-4) o/y prereq 324 or 365 or c/i. Comparative adaptive morphology, bionomics and current taxonomic concepts.

515 ZOOGEOGRAPHY 4 (3-1) prereq 2 courses in advanced vertebrate zoology. Past and present distribution of animals, with special emphasis on vertebrates. Influence of climate, place of origin, dispersal routes, and faunal composition. Geological and botanical evidences considered.

516 CONCEPTS AND PRINCIPLES OF SYSTEMATIC ZOOLOGY 3 (3-0) o/y prereq 25 hours in zoology including 250 and 485. Selected topics relating to evolution, speciation and the various philosophies influencing systematic zoology.

523 PHOTOBIOLOGY 4 (3-4) prereq 330. The interaction between non-ionizing radiation and biological systems including photosynthesis, vision, photoperiodism, bioluminescence; methods for studying effects of light on plants, animals and microorganisms. (Credit not allowed for this course and Bot 553.)

524 RADIOBIOLOGY 4 (2-4) prereq 330. The influence of ionizing radiation (x-rays, gamma rays, and accelerated particles) on biological systems and the use of radio-isotopes in biology. (Credit not allowed for this course and Bot 524.)

531 (403) COMPARATIVE PHYSIOLOGY-INVERTEBRATE 5 (3-4) prereq Physics 113 or 223, Chem 262 and one animal physiology course. Physiological processes of the organ systems of the major invertebrate phyla in relation to environment.

532 (402) COMPARATIVE PHYSIOLOGY-VERTEBRATE 5 (3-4) prereq Physics 113 or 223, Chem 262 and one animal physiology course. Physiological processes of the organ systems of the five vertebrate classes in relation to environment.

533 (333) ENDOCRINOLOGY 5 (3-4) prereq Zool 113 and one animal physiology course. The physiology of the glands of internal secretion of the vertebrates with a survey of those of the invertebrates.

551 GENERAL ECOLOGY Su 5 (6-15) prereq Bachelor's degree; major preparation in Botany, Biology or Zoology. Community concepts including succession, stratification, periodicity and energy relationships; introduction to population problems.

561 LIMNOLOGICAL METHODS 3 (3-12) prereq 461, Chem 123. Practice in standard procedures employed. Field work.

590 MOLECULAR BIOLOGY SEMINAR 1 R (1-0) prereq graduate standing. Molecular biology and biochemistry. (Cross-listed with Botany, Chemistry, and Microbiology.)

600 ADVANCED ZOOLOGICAL PROBLEMS V 1-5. Students with sufficient preparation and ability pursue original investigations.

685-686-687 ADVANCED MOLECULAR BIOLOGY LABORATORY 1-3 prereq 482 or c/i. Modern biochemically oriented research techniques. (Cross listed as Botany, Chemistry, Microbiology and Pharmacy.)

699 THESIS V R-15.
<table>
<thead>
<tr>
<th>Name</th>
<th>University</th>
<th>Position</th>
<th>Field</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>Aker, John P., LL.B.</td>
<td>University of Montana</td>
<td>Assistant Professor of Law</td>
<td></td>
<td></td>
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<tr>
<td>Adams, Harry F., M.S.</td>
<td>University of Washington</td>
<td>Head Track Coach</td>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Ainsworth, Hazel F., B.F.A.</td>
<td>National Art Academy</td>
<td>Nursery School Assistant in Home Economics</td>
<td>(part-time)</td>
<td></td>
</tr>
<tr>
<td>Alexander, Paul B., Ph.D.</td>
<td>University of Oregon</td>
<td>Associate Professor of Geography</td>
<td>(on leave 1969-70)</td>
<td></td>
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<tr>
<td>Allen, Charles K., Ph.D.</td>
<td>Ohio State University</td>
<td>Assistant Professor of Psychology</td>
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<tr>
<td>Allred, Keith L., M.A.</td>
<td>Montana State University</td>
<td>Assistant Professor of Education</td>
<td>(part-time)</td>
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<tr>
<td>Allred, D. D., Ph.D.</td>
<td>Texas University</td>
<td>Associate Professor of Geology</td>
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<tr>
<td>Ammons, R. E., Ph.D.</td>
<td>State University of Iowa</td>
<td>Professor of Psychology</td>
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<tr>
<td>Anderson, C. LeRoy, Ph.D.</td>
<td>Ohio State University</td>
<td>Associate Professor of Sociology</td>
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<td>Anderson, D. Lawrence, M.A.</td>
<td>University of Alberta</td>
<td>Visiting Instructor in Geography</td>
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<tr>
<td>Anderson, Hal E., B.S.</td>
<td>Central Washington State College</td>
<td>Research Professor of Forestry</td>
<td>(Faculty Affiliate)</td>
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<tr>
<td>Anderson, Homer E., M.A.</td>
<td>University of Montana</td>
<td>Professor of Management</td>
<td>Business Administration and</td>
<td>Business and Economic Research</td>
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<tr>
<td>Anderson, Robert I., M.Ed.</td>
<td>Colorado State University</td>
<td>Assistant Professor of Education</td>
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<tr>
<td>Andress, Eugene, M.A.</td>
<td>University of Washington</td>
<td>Professor of Music</td>
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<td>Anticama-Cabrera, Felix V., M.A.</td>
<td>Cornell University</td>
<td>Professor in Foreign Languages</td>
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<tr>
<td>Arkyo, Morton L., Ph.D.</td>
<td>University of Wyoming</td>
<td>Associate Professor of Social Welfare</td>
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<tr>
<td>Arnold, Aden F., M.A.</td>
<td>State University of Iowa</td>
<td>Professor Emeritus of Art</td>
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<td>Arnt, Argus, M.A.</td>
<td>University of Washington</td>
<td>Instructor in Drama</td>
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<td>Atchowe, John M., Ph.D.</td>
<td>Stanford University</td>
<td>Professor of Psychology</td>
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<td>Autry, A. Rudy, M.F.A.</td>
<td>Washington State University</td>
<td>Professor of Art</td>
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<tr>
<td>Babes, Harold, Ph.D.</td>
<td>Ohio State University</td>
<td>Chairman and Professor of Psychology</td>
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<tr>
<td>Bailey, E. Kirk, B.A.</td>
<td>University of Montana</td>
<td>Controller Emeritus</td>
<td>(Professor Emeritus)</td>
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<tr>
<td>Baker, Eldon E., Ph.D.</td>
<td>Purdue University</td>
<td>Assistant Professor of Speech Communication</td>
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<tr>
<td>Ballard, William R., Ph.D.</td>
<td>Chicago University</td>
<td>Professor of Mathematics</td>
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<tr>
<td>Bankhead, Robert P., Ph.D.</td>
<td>University of California</td>
<td>Director of the Computer Center</td>
<td>Chairman and Professor of Computer Science</td>
<td></td>
</tr>
<tr>
<td>Banksley, Judy L., M.S.</td>
<td>Idaho State University</td>
<td>Instructor in Forestry</td>
<td>Physical Sciences and</td>
<td>(Faculty Affiliate)</td>
</tr>
<tr>
<td>Barness, Lawrence E., M.S.</td>
<td>Oregon State University</td>
<td>Professor of English</td>
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<tr>
<td>Barkley, R. R., Ph.D.</td>
<td>Montana State University</td>
<td>Chairman and Associate Professor of Business Administration (Management)</td>
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<tr>
<td>Barton, Bruce W., M.A.</td>
<td>San Diego State College</td>
<td>Chairman and Professor of Art</td>
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<tr>
<td>Bateyan, William G., Ph.D.</td>
<td>Yale University</td>
<td>Professor Emeritus of Chemistry</td>
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<tr>
<td>Bauchman, Robert G., M.S.</td>
<td>University of Washington</td>
<td>Research Associate in Forestry</td>
<td>(Faculty Affiliate)</td>
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<tr>
<td>Beall, Robert C., B.S.</td>
<td>University of Michigan</td>
<td>Assistant in Forestry</td>
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<tr>
<td>Beaufait, William R., Ph.D.</td>
<td>University of Michigan</td>
<td>Professor of Aerospace Studies</td>
<td>(Faculty Affiliate)</td>
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<tr>
<td>Behan, Mark J., Ph.D.</td>
<td>University of Washington</td>
<td>Associate Professor of Philosophy</td>
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<td>Behan, Richard W., M.S.F.</td>
<td>University of Montana</td>
<td>Associate Professor of Philosophy</td>
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<tr>
<td>Benedict, John H., Captain.</td>
<td>B.S. Oregon State College</td>
<td>Assistant Professor of Aerospace Studies</td>
<td>(Faculty Affiliate)</td>
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<tr>
<td>Bennett, Edward E., Ph.D.</td>
<td>University of Wisconsin</td>
<td>Professor Emeritus of Mathematics</td>
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<td>Bennett, Raymond J., Ph.D.</td>
<td>University of Wisconsin</td>
<td>Associate Professor of Pharmacy</td>
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<tr>
<td>Benson, Robert M., B.S.</td>
<td>University of Minnesota</td>
<td>Research Associate in Forestry</td>
<td>(Faculty Affiliate)</td>
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<tr>
<td>Berg, Kyle D., Ed.D.</td>
<td>University of Montana</td>
<td>Assistant Professor of Education</td>
<td>Director, Division of Educational Research and Service</td>
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<td>Berg, Laurence H., Ph.D.</td>
<td>University of Washington</td>
<td>Assistant Professor of Psychology</td>
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<td>Bessa, Frank B., Ph.D.</td>
<td>University of Wisconsin</td>
<td>Associate Professor of Anthropology</td>
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<td>Bichler, William D., B.A.</td>
<td>Central Washington State College</td>
<td>Assistant Football Coach</td>
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<td>Bier, Jesse, Ph.D.</td>
<td>Princeton University</td>
<td>Professor of English</td>
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<td>Billaire, Richard W., M.A.</td>
<td>University of Montana</td>
<td>Instructor in Mathematics</td>
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<td>Birch, Joan (Mrs.), Ph.D.</td>
<td>University of Texas</td>
<td>Lecturer in Foreign Languages</td>
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<td>Bisch, Thomas H., Jr., Ph.D.</td>
<td>University of Texas</td>
<td>Assistant Professor of Philosophy</td>
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<td>Black, Bryan T., M.A.</td>
<td>Edinburgh University</td>
<td>Instructor in Philosophy</td>
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<td>Blackman, Maxine (Mrs.), M.A.</td>
<td>University of Montana</td>
<td>Assistant Professor of Art</td>
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<td>Blake, George M., Ph.D.</td>
<td>University of Minnesota</td>
<td>Associate Professor of Forestry</td>
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<td>Blize, Guy (Mrs.), B.A.</td>
<td>University of Montana</td>
<td>Assistant in Health, Physical Education and Recreation</td>
<td>(part-time)</td>
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<td>Block, Donald M., B.A.</td>
<td>Bowdoin College</td>
<td>Instructor in English</td>
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<td>Blumberg, Nathan B., Ph.D.</td>
<td>Oxford University</td>
<td>Professor of Journalism</td>
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<td>Bodeker, Basel B., M.D.</td>
<td>Loyola University</td>
<td>Assistant Director of Health Service and Lecturer in Health, Physical Education and Recreation</td>
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<td>Bodeker, Richard M., Ph.D.</td>
<td>State University of Iowa</td>
<td>Professor of Speech Pathology and Audiology</td>
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<td>Born, Dorothy R., M.A.</td>
<td>University of Montana</td>
<td>Instructor in Foreign Languages</td>
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<td>Bolen, Charles W., Ph.D.</td>
<td>Indiana University</td>
<td>Dean of the School of Fine Arts and Professor of Music</td>
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<td>Bonna, Anoma H., B.A.</td>
<td>Columbia University</td>
<td>Dean and Professor of Forestry and Director of the Forest and Conservation Experiment Station</td>
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<td>Bonsack, Robert R., Ph.D.</td>
<td>Purdue University</td>
<td>Associate Professor of Speech Communication</td>
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<td>Bonsack, Joseph D., B.A.</td>
<td>University of Montana</td>
<td>Assistant in Forestry</td>
<td>(Winter 1970)</td>
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<tr>
<td>Bowden, Dean J., M.S.</td>
<td>Colorado State University</td>
<td>Instructor in Forestry</td>
<td>(part-time)</td>
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<td>Brad, George J., Ph.D.</td>
<td>University of Illinois</td>
<td>Professor of Business Administration</td>
<td>(Management)</td>
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<td>Brackenridge, Arthur P., M.S.F.</td>
<td>University of Montana</td>
<td>Research Associate in Forestry (Faculty Affiliate)</td>
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<td>Braun, Harold A., M.D.</td>
<td>Harvard University</td>
<td>Professor of Psychology</td>
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<td>Brown, Jonathan, Ph.D.</td>
<td>University of Pennsylvania</td>
<td>Professor of Sociology</td>
<td>(Executive Director of the Institute for Social Science Research)</td>
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<td>Brown, William J., Ph.D.</td>
<td>University of Wisconsin</td>
<td>Professor of Dramatic Literature</td>
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<td>Brown, James K., Ph.D.</td>
<td>University of Michigan</td>
<td>Research Associate in Forestry</td>
<td>(Faculty Affiliate)</td>
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<td>Brown, Timothy A., M.S.</td>
<td>University of Illinois</td>
<td>Director of Library Public Service</td>
<td>(Assistant Professor)</td>
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<td>Brown, Walter L., Ph.D.</td>
<td>University of California</td>
<td>Professor of English</td>
<td>(Sabbatical leave, winter and spring 1969-70)</td>
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<td>Brunson, Royal B., Ph.D.</td>
<td>University of Michigan</td>
<td>Professor of Zoology</td>
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<td>Bryan, Charles A., Ph.D.</td>
<td>University of Arizona</td>
<td>Associate Professor of Mathematics</td>
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<td>Bryan, Gordon H., Ph.D.</td>
<td>University of Maryland</td>
<td>Professor of Pharmacology</td>
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<td>Burger, Henry G., Ph.D.</td>
<td>University of California</td>
<td>Chairman and Professor of Philosophy</td>
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<td>Bumser, Dana M., M.A.</td>
<td>University of Montana</td>
<td>Assistant Professor of Health, Physical Education and Recreation</td>
<td>(Faculty Affiliate)</td>
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<td>Bums, Donald L., M.F.A.</td>
<td>University of Washington</td>
<td>Assistant Professor of Art</td>
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<td>Bush, Willy, Ph.D.</td>
<td>University of Basel, Switzerland</td>
<td>Lecturer in Zoology</td>
<td>(Faculty Affiliate)</td>
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<td>Bury, Robert M., Ph.D.</td>
<td>University of California</td>
<td>Professor of Foreign Languages</td>
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<tr>
<td>Burrington, E. P., Ph.D.</td>
<td>Eastern Montana College</td>
<td>Assistant in Mathematics (part-time)</td>
<td>Fall and winter, 1969-70</td>
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<tr>
<td>Campaello, Paul, J.L.</td>
<td>University of Montana</td>
<td>Clinician-Director of Summer Residential Program, Speech Pathology and Audiology</td>
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</table>
COONEY, ROBERT

DAHLBERG, Cox, JAMES W., Ph.D., Montana

CRoss, CANARIS, ALBERT G., Ph.D., Oregon

DEBOURG, ROGER,

CUMMINGS, MARY

CROMWELL, GARDNER,

CO LEMAN, RUFUS

CLOW, MAURINE,

CHASE, CHANEY, ROBERT

CHRISTOPHERSON, JOAN

CARD, CURTIS, WILLIAM W., Ph.D., Illinois

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CUMMINGS, MARY (Mrs.), M.A., University of Montana; Lecturer in Sociology and Social Welfare (part-time)

CUMMINGS, LEO, B.S., Colorado State University; Associate Professor of Forestry

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CURRY, ROBERT B., M.D., Indiana University Medical School; Director of the Health Sciences and Associate Professor of Health, Physical Education and Recreation

CURRY, ROBYN B., Ph.D., University of California, Berkeley; Assistant Professor of Psychology

CURTIS, WILLIAM W., Ph.D., University of Illinois; Assistant Professor of Geography

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Doty, Gerard H., Ed.D., Indiana University; Professor of Music

Doty, Jack H., M.B.A, Harvard University; Associate Professor of Business Administration (Management) (on leave 1969-70)

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Dove, Lois A. (Mrs.), M.A., University of Minnesota; Assistant Professor of Education

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Dugan, Edward B., M.A., University of Missouri; Professor of Journalism

Duke, Victor, H., Ph.D., University of Utah; Associate Professor of Pharmacy

Dunmore, Roger J. M., Pennsylvania State University; Visiting Lecturer in English

EDELMAN, LEE E., Ph.D., Colorado State University; Assistant Professor of Forestry

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EITZ, FRANCESCU (Mrs.), B.M., Eastman School of Music; Lecturer in Music (part-time)

Eklund, Carl M. D., University of Minnesota; Lecturer in Virology, Department of Microbiology (Faculty Affiliate)

Elder, BETTE L., M.S., Indiana State University; Instructor in Home Economics

Elson, Larry M., S.J.D., University of Michigan; Professor of Law

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Emelen, Donald J., Ph.D., Columbia University; C.P., Montana; Professor of Accounting and Finance (Business Administration)

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Farrington, Mary W., B.A., University of Montana; Visiting Instructor in Foreign Languages

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Faus, richard A., Ph.D., Purdue University; Associate Professor of Microbiology

FeLLens, MICHAEL P. (Captain), B.S., United States Military Academy, West Point; Associate Professor of Military Science (Faculty Affiliate)

Fellin, David G., Ph.D., Oregon State University; Research Associate in Forestry (Faculty Affiliate)

Ferguson, MARY E. (Mrs.), M.A., Columbia University; Assistant Director Emeritus of the Museum and Northwest Historical Collection (Assistant Professor Emeritus)

Ferrall, Michael A., B.D.A., Goodman Theatre-Art Institute; Distinguished Visiting Lecturer in Drama

Fershen, Ralph J., Ph.D., University of California; Chairman and Professor of Chemistry

Fitton, richard H., Ph.D., University of Utah; Associate Professor of Chemistry

Fitz, Chris, Ph.D., University of California at Los Angeles; Chairman and Associate Professor of Geography

Fitch, Frank R., Ph.D., State University of Iowa; Professor of English

Floyd, Ridgway, J., M.A., University of Montana; Professor of History
THOMPSON, GRAHAM R., M.A., Dartmouth College; Instructor in Geology
THOMPSON, RONALD B., Arch., Dip. T.P., University of London; Lecturer in Sociology (Autumn Quarter)
TIBBS, JOHN, Ph.D., University of Southern California; Assistant Professor of Zoology (on leave, fall 1969)
TOSFELDT, WARD, M.A., Occidental College; Instructor in English
TOELLE, J. HOWARD, LL.M., Harvard University; Professor Emeritus of Law
TOOLE, K. ROSS, Ph.D., University of California at Los Angeles; Professor of History
TOUDGE, ALEXANDER, M.A., University of California, Berkeley; Research Associate in the Bureau of Business and Economic Research; Instructor in Economics
TURNER, ROBERT T., Ph.D., University of California at Los Angeles; Professor of History
ULRICH, JAMES R., Ph.D., Southern Illinois University; Assistant Professor of Psychology
USHIZMA, RICHARD N., Ph.D., University of Utah; Associate Professor of Microbiology
VALENTINE, ELLIS, PH.D., University of California; Visiting Professor of Psychology
WALTON, RICHARD E., M.A., Claremont Graduate School; Professor of Philosophy
WALLACE, ROBERT F., Ph.D., Pennsylvania State University; Professor of Psychology
WAILES, VON ODIN, R., Ph.D., University of Wisconsin; Professor of Zoology
WICK, PHILIP L., Ph.D., University of Wisconsin; Professor of Zoology
WICKS, JOHN H., Ph.D., University of Illinois; Associate Professor of Economics
WIDMARK, ROBERT M., Ph.D., University of California, Berkeley; Assistant Professor of Chemistry
WIEBE, GEORGE F., Ph.D., University of California at Los Angeles; Professor of Sociology
WILLET, WINIFRED M., M.A., Oregon State University; Assistant Professor of English
WILLIAMS, JAMES, Ph.D., University of California; Visiting Professor of History
WILSON, ROBERT T., Ph.D., University of California; Visiting Professor of Psychology
WRIGHT, ROBERT F., Ph.D., University of California; Visiting Professor of Political Science
WOODBURY, GEORGE W., Ph.D., University of Minnesota; Visiting Professor of Economics
WOODS, GEORGE W., Ph.D., University of Minnesota; Visiting Professor of Geology
WRIGHT, CHARLES, M.A., University of California; Visiting Professor of Psychology
WYATT, ROBERT W., M.A., University of Wisconsin; Professor of Zoology
Yates, Leland, M. Ph.D., Washington State University; Associate Professor of Mathematics
Zimmermann, Robert R., Ph.D., University of Wisconsin; Professor of Psychology
Zylawy, Roman I., M.A., University of Kansas; Instructor in Foreign Languages