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MONTANA STATE UNIVERSITY BULLETIN

Number 473

Published at Missoula, Montana. Issued six times yearly: February; twice in March; July; October; and December. Entered as second-class matter at the post office at Missoula, Montana, under Act of Congress August 24, 1912.

For publications and detailed information concerning the different schools and colleges address the Registrar of the particular institution concerned. Communications intended for the Executive Office of the University of Montana should be addressed to the State Capitol, Helena, Montana.
Majestic and proud, its rising tower a symbol of strength, University Hall is the oldest and most revered building on the Montana State University campus. Its tower houses the Memorial Carillon, dedicated to former students who gave their lives in defense of their country.
Radio Class in Journalism

Chemistry Lab

Music School Concert

Aquamaid Pageant

Riding Instruction at University Stables
Lodge - Student Union and Cafeteria

Basketball in the Field House

Tradition - Singing on the Steps
THE UNIVERSITY OF MONTANA

The University of Montana is constituted under the provisions of Chapter 92 of the Laws of the Thirteenth Legislative Assembly, approved March 14, 1913 (effective July 1, 1913).

The general control and supervision of the University are vested in the State Board of Education. For each of the component institutions there is a local executive board.

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The University comprises the following institutions, schools, and departments:

MONTANA STATE UNIVERSITY, MISSOUA

Established February 17, 1893, and consisting of:
The College of Arts and Sciences
The School of Law
The School of Pharmacy
The School of Forestry
The School of Journalism
The School of Music
The School of Business Administration
The School of Education
The College of Fine Arts
The Summer College

MONTANA STATE UNIVERSITY, BOZEMAN

Established February 16, 1893, and consisting of:
The Division of Agriculture
The Division of Engineering
The Division of Household and Industrial Arts
The Division of Science
The Division of Education
The School of Nursing
The Agricultural Experiment Station
The Montana Grain Inspection Laboratory
The Montana Wool Laboratory
The Central Montana Branch Station (Mocassin)
The Horticulture Branch Station (Corvallis)
The Eastern Branch Station (Sidney)

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MONTANA SCHOOL OF MINES, BUTTE

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The Course in Mining Engineering
The Bureau of Mines and Geology
The Course in Petroleum Engineering
The Course in Ceramic Engineering

Edwin G. Koch, President

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The Two-year Course in Teacher Education
The Four-year Course in Teacher Education (Elementary and Secondary)
The Teachers’ Service Division

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The Four-year Curriculum in Teacher Education—Elementary and Secondary
The Two-year Curriculum in Teacher Education
The Graduate Division
The Summer Quarter

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The Two-year Liberal Arts, Vocational, Technical, and Pre-Professional Courses
The Three-year Course in Mechanical Engineering
The Three-year Course in Education—Elementary

L. O. Brockmann, President

MONTANA STATE UNIVERSITY

CALENDARS 1957 - 58

1957

AUTUMN QUARTER

September 22-28, Sunday through Saturday—Orientation Week and Registration
September 25-28, Wednesday through Saturday—Registration of Former Students
September 30, Monday—Instruction Begins
November 11, Monday—Veterans Day, a Holiday
November 23, Thursday—Thanksgiving Day, a Holiday
December 16-20, Monday through Friday—Examinations
December 20, 5:20 p.m.—Autumn Quarter Ends; Christmas Recess Begins

WINTER QUARTER

January 6-7, Monday and Tuesday—Registration of all students
February 17, Monday—Chamber Day
March 17-21, Monday through Friday—Examinations
March 21, 5:20 p.m.—Winter Quarter Ends; Spring Recess Begins

SPRING QUARTER

March 31, April 1, Monday and Tuesday—Registration of all students
May 23-24, Friday and Saturday—Interscholastic Meet
May 30, Friday—Memorial Day, a Holiday
June 9, Monday—Commencement
June 9-13, Monday through Friday—Examinations
June 13, 5:20 p.m.—Spring Quarter Ends

SUMMER SESSION

June 16, Monday (10 weeks and first term)—Registration
June 17, Tuesday—Instruction Begins
July 4, Friday—Independence Day, a Holiday
July 21, Monday—Second Term Begins
August 22, Friday—Session Ends

1958

AUTUMN QUARTER

September 21-27, Sunday through Saturday—Orientation Week and Registration
September 24-27, Wednesday through Saturday—Registration of former students
September 29, Monday—Instruction Begins
November 11, Tuesday—Veterans Day, a Holiday
November 27, Thursday—Thanksgiving Day, a Holiday
December 15-19, Monday through Friday—Examinations
December 19, 5:20 p.m.—Autumn Quarter ends; Christmas Recess Begins

SPRING QUARTER

September 23-25, Monday through Wednesday—Registration and orientation of new law students (including transfer students from other schools)
September 25, Wednesday—Registration of upperclass law students
September 26, Thursday—Classes begin at 8:00 a.m.
November 28, Thursday—Thanksgiving Day (no classes)
December 21, Saturday—Christmas vacation begins after last class
January 6, 1959—Classes resume at 8:00 a.m.
January 8-11, Wednesday through Friday—Pre-registration for courses in the Spring Semester 1958
January 27-February 1, Monday through Saturday—Semester examinations

LAW CALENDAR 1957 - 58

FALL SEMESTER 1957

September 23-25, Monday through Wednesday—Registration and orientation of new law students (including transfer students from other schools)
September 25, Wednesday—Registration of upperclass law students
September 26, Thursday—Classes begin at 8:00 a.m.
November 28, Thursday—Thanksgiving Day (no classes)
December 21, Saturday—Christmas vacation begins after last class
January 6, 1958—Classes resume at 8:00 a.m.
January 8-11, Wednesday through Friday—Pre-registration for courses in the Fall Semester 1958

SPRING SEMESTER 1958

February 3, Monday—Registration for Spring Semester
February 4, Tuesday—Classes begin at 8:00 a.m.
March 23, Saturday—Spring vacation begins after last class
March 31, Monday—Classes resume at 8:00 a.m.
April 16-18, Wednesday through Friday—Pre-registration for courses in the Fall Semester 1958
May 29-June 4, Thursday through Wednesday—Semester examinations in all courses
June 9, Monday—Commencement

FALL SEMESTER 1958

September 22-24, Monday through Wednesday—Registration and orientation of new law students (including transfer students from other schools)
September 24, Wednesday—Registration of upperclass law students
September 25, Thursday—Classes begin at 8:00 a.m.
November 27, Thursday—Thanksgiving Day (no classes)
December 20, Saturday—Christmas vacation begins after last class
January 5, 1959—Classes resume at 8:00 a.m.
January 7-10, Wednesday through Friday—Pre-registration
January 26-31, Monday through Saturday—Semester examinations
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TURNER, ROBERT T., B.A., M.A., Ph.D., Dean of the College of Arts and Sciences, Professor, Acting Director of Museum

WALDRON, ELLIS L., B.A., M.A., Ph.D., Acting Dean of the Graduate School, Professor

WREN, MELVIN C., B.A., M.A., Ph.D., Professor

HOME ECONOMICS

BROWN, BRUCE M., B.A., M.A., Instructor

CHAMBERLAIN, D. GERTRUDE, B.S., Instructor; Dietitian, Food Service

DALTHORP, LOIS M. (Mrs.), B.A., Instructor; Dietitian, Food Service

DAWES, ARTIE, B.A., Head Teacher, Nursery School and Kindergarten (Instructor)

GAETZ, E. RAE, B.S., Instructor; Dietitian, Food Service

GLEASON, HELEN, B.S., M.A., Professor Emeritus

KOTSHEVAR, LENDAL H., B.A., B.S., M.A., Ph.D., Chairman; Professor; Director, Food Service

KRER, JESSICA (Mrs.), B.S., M.A., Instructor

*LABER, EVELYN M. (Mrs.), B.A., M.A., Instructor

*LITTLEFIELD, SARAH W., B.S., M.S., Assistant Professor

LORY, NAOMI (Mrs.), B.S., Instructor

*OLSON, VIOLA, B.A., M.Ed., Instructor

PLATT, ANNE C., B.S., M.S., Professor

*WILLIAMSON, MAUDE, B.A., M.A., Ed.D., Visiting Professor (Spring Quarter 1957)

SCHOOL OF JOURNALISM

*BERTH, ALAN, Ph.B., Visiting Professor (Winter Quarter 1957)

BLUMBERG, NATHAN B., B.A., M.A., Ph.D., Professor; Dean

BUE, OLAF J., B.A., M.S.J., Professor

COGSWELL, ANDREW C., B.A., M.A., Professor, Dean of Students

DUGAN, EDWARD B., B.J., M.A., Professor

JOHNSON, DOROTHY M., B.A., Assistant Professor (Part-time)

YU, FREDERICK TEH-CHI, B.A., M.A., Ph.D., Associate Professor

*On staff 1956-57, but not 1957-58
SCHOOL OF LAW

BRIGGS, EDWIN W., B.S., LL.B., LL.M., Professor (on leave)
*COTTER, JOHN F., LL.B., Visiting Professor (Spring Semester 1957)
CROMWELL, GARDNER, B.A., LL.B., LL.M., Assistant Professor
FOLSOM, GWENDOLYN B., B.A., M.A., Acting Law Librarian, Research Assistant and Secretary, President’s Office
*HOLT, H. L., B.A., LL.B., Assistant Professor (Spring Semester 1957)
*KILBOURN, WILLIAM DOUGLAS, Jr., B.A., LL.B., Assistant Professor
KIMBALL, EDWARD L., B.S., LL.B., Assistant Professor
LEAPHART, CHARLES W., B.A., M.A., LL.B., S.J.D., Dean Emeritus, Professor Emeritus
LOHN, SHERMAN V., B.A., LL.B., LL.M., Assistant Professor (part-time)
McFARLAND, CARL, B.A., M.A., LL.B., S.J.D., LL.D. (honorary), President, Professor
MASON, DAVID R., LL.B., S.J.D., Professor
*PROVOST, OSCAR A., B.A., LL.B., Professor (Deceased November 23, 1956)
RUSSEL, CHARLOTTE, Law Librarian and Secretary Emeritus
SMITH, RUSSELL E., LL.B., Assistant Professor
STONE, ALBERT W., B.A., LL.B., Associate Professor
SULLIVAN, ROBERT E., B.A., LL.B., Dean, Professor
TEOLLE, J. HOWARD, B.A., LL.B., M.A., LL.M., Professor Emeritus

MATHEMATICS

BALLARD, WILLIAM R., B.A., M.S., Assistant Professor
CHATLAND, HAROLD, B.A., M.S., Ph.D., Professor, Dean of the Faculty, Acting Vice President
COWELL, WAYNE R., B.S., M.S., Ph.D., Assistant Professor
HASHISAKI, JOSEPH, B.A., M.A., Ph.D., Associate Professor, Assistant to the Dean of the Faculty
HIGMAN, DONALD G., B.A., M.A., Ph.D., Associate Professor (on leave of absence, 1955-56)
MERRILL, A. S., B.A., M.A., Ph.D., Professor Emeritus, Vice President Emeritus
MYERS, VERA T. (Mrs.), B.A., M.A., Lecturer (part-time)
MYERS, WILLIAM M., Jr., B.A., M.A., Ph.D., Associate Professor
OSTROM, THEODORE G., B.A., B.S., M.A., Ph.D., Chairman, Professor
PETERSON, JOHN A., B.A., M.A., Instructor
REINHARDT, HOWARD E., B.S., M.A., Assistant Professor
SCHMIDT, WOLFGANG, Ph.D., Assistant Professor (on leave of absence)
SCHMITTROTH, LOUIS A., B.S., M.S., Ph.D., Assistant Professor
YOUNG, FREDERICK H., B.A., M.A., Ph.D., Associate Professor

SCHOOL OF PHARMACY

BRYAN, GORDON H., B.S., M.S., Ph.D., Associate Professor
*CALL, TRACEY G., B.S., M.S., B.A., Ph.D., Associate Professor
MOLLETT, CHARLES E. F., Ph.C., B.A., M.S., Professor Emeritus
SUCHY, JOHN F., Ph.C., B.S., M.S., Ph.D., Professor
VAN HORN, ROBERT L., B.S., M.S., Ph.D., Dean, Professor
WAILES, JOHN L., B.S., M.S., Ph.D., Assistant Professor

PHILOSOPHY

ADAMCZEWSKI, ZYGMENT, B.A., M.A., Ph.D., Assistant Professor
ARMOUR, J. LESLIE, B.A., Ph.D., Assistant Professor
BUGBEE, HENRY G., Jr., B.A., M.A., Ph.D., Professor (on leave of absence)
MARVIN, EDWIN L., B.A., M.A., Chairman, Professor
SCHUSTER, CYNTHIA A. (Mrs.), B.A., M.A., Ph.D., Associate Professor

PHYSICS

HAYDEN, RICHARD J., B.A., M.S., Ph.D., Associate Professor
JAKOBSON, MARK J., B.A., M.A., Ph.D., Associate Professor
JEPPESEN, C. RULON, B.A., M.A., Ph.D., Chairman, Professor
SULLIVAN, ROBERT E., B.A., LL.B., Dean, Professor
TOELLE, J. HOWARD, B.A., M.S., Ph.D., Assistant Professor

PSYCHOLOGY

AMMONS, R. B., B.A., M.A., Ph.D., Professor
ATRINGSON, E. A., B.A., M.A., Professor, Director of the Summer Session
BRISSEY, F. LEE, B.A., M.A., Ph.D., Lecturer
*BUKER, SAMUEL, B.A., M.A., Ph.D., Lecturer
BURGESS, THOMAS C., B.A., Ph.D., Assistant Professor
CLOW, MAURINE, B.A., M.A., Ph.D., Professor, Associate Dean of Students
COOPER, HOMER C., B.A., M.A., Ph.D., Assistant Professor
duMAS, FRANK M., B.S., M.A., Ph.D., Associate Professor
GORDON, JESSE E., B.S., M.A., Ph.D., Assistant Professor
SAPPENFIELD, BERT R., B.A., M.A., Ph.D., Chairman, Professor
STRAUGHAN, JAMES H., B.A., M.A., Ph.D., Assistant Professor

AFFILIATED SCHOOL OF RELIGION

FERM, DEANE W., B.A., M.A., Ph.D., Assistant Professor
FORD, RICHARD S., B.A., M.Th., Ph.D., Assistant Professor
JOHNSON, GLENN, B.Th., B.D.
*ROSS, JEAN McRAE, B.A., M.R.E., Instructor, Assistant Director

RESERVE OFFICERS TRAINING CORPS

Air Science

HAGOOD, DONALD M., Captain, USAF, B.S., Assistant Professor
HOLSTEDT, JOHN H., Major, USAF, B.A., Associate Professor
JAMISON, DONALD C., Colonel, USAF, B.A., Chairman, Professor
PERRY, ELMER T., Major, USAF, B.A., Associate Professor
*PETERSON, DWIGHT W., Captain, USAF, B.A., Assistant Professor
PHILLIPS, JOHN W., Captain, USAF, B.A., Assistant Professor

Military Science (Army)

DEMONS, JACK L., 1st Lt., U. S. Army, B.S., Instructor
GILBERTSON, RODNEY B., Captain, U. S. Army, B.S., Assistant Professor
HARPER, ROBERT L., Captain, U. S. Army, B.S., Assistant Professor
LAMB, EMMRICH D., Jr., Major, U. S. Army, Ph.B., Associate Professor
LEWIS, WILLIAM J., Lt. Col., U. S. Army, B.A., Chairman, Professor
*MATTHEWS, DONALD G., Captain, U. S. Army, B.S., Assistant Professor

SOCIOLOGY, ANTHROPOLOGY, SOCIAL WELFARE

BROWDER, W. GORDON, B.A., M.A., Ph.D., Chairman, Professor
BROWN, BRUCE M., B.A., M.A., Instructor
*CARROLL, JAMES W., B.A., M.A., Instructor
COLVIN, MILTON, B.A., Ph.D., Assistant Professor
DAY, BARBARA R., B.S., M.A., Ph.D., Assistant Professor
MALOUF, CARLIN G., B.S., M.S., Ph.D., Assistant Professor
TASCHER, HAROLD, B.A., M.A., Ph.D., Professor
TAYLOR, DEE C., B.A., M.A., Ph.D., Assistant Professor

*On staff 1956-57, but not 1957-58
SERVICES

BUREAU OF BUSINESS AND ECONOMIC RESEARCH
CHAMBERS, EDWARD J., B.Com., B.A., M.A., Ph.D., Associate Director; Associate Professor, Business Administration

JOHNSON, MAXINE C. (Mrs.), B.A., M.A., Research Associate; Instructor, Business Administration (Instructor)

SHAUDYS, JEAN H. (Mrs.), B.A., M.A., Ph.D., Research Associate (part-time)

SHEARER, HENRY K., B.A., M.A., Ph.D., Director, Associate Professor, Economics

BUREAU OF GOVERNMENT
RICHERT, ROBERT E., B.A., M.A., Ph.D., Director; Assistant Professor, History and Political Science

BIOLOGICAL STATION
CASTLE, GORDON B., B.A., M.A., Ph.D., Director; Professor, Zoology

Staff of Botany and Zoology Departments

FOREST AND CONSERVATION EXPERIMENT STATION
BALDW IN, DON, B.S.F., Superintendent of Nursery and Supervisor of School Forest

COONEY, ROBERT F., B.S.F., Research Associate

WILLIAMS, ROSS A., B.S.F., M.F., Director; Dean and Professor, Forestry

Staff of Forestry School

WILDLIFE UNIT

CRAIGHEAD, JOHN J., B.A., M.S., Ph.D., Leader, Montana Cooperative Wildlife Research Unit; Associate Professor, Forestry and Zoology.

TABER, RICHARD D., B.A., M.S., Ph.D., Assistant Leader, Montana Cooperative Wildlife Research Unit; Assistant Professor, Forestry

WRIG T, PHILIP L., B.S., M.S., Ph.D., Assistant Leader, Montana Cooperative Wildlife Research Unit; Professor, Zoology

PUBLIC SERVICE DIVISION

ANDERSON, HOMER E., B.S., M.A., Director

MILLER, ROSS L., B.A., Director, New Service

FENGELLY, W. LESLIE, B.A., M.S., Head, Conservation Education Extension

RESIDENCE HALLS

BERRY, RUTH M. (Mrs.), Head Resident, Elrod Hall

BUSH, BARBARA JO (Mrs.), B.A., Supervisor, Dormitory Housing

GORDON, INA C. (Mrs.), Head Resident Emeritus, Corbin Hall

HAZELBAKER, LOIS (Mrs.), B.A., Assistant Head Resident, North Corbin Hall

HODGSON, PHYLLIS H. (Mrs.), Assistant Head Resident, Brantly Hall

HUFF, EDITH V. (Mrs.), Head Resident, Corbin Hall

MOORE, ELIZABETH V. (Mrs.), Assistant Head Resident, Turner Hall

PIERCE, GRACE BLAKE (Mrs.), Head Resident Emeritus, Elrod Hall

RIMEL, S. (Mrs.), Head Resident, Turner Hall

ROUSH, MARJORIE ANN, B.S., M.A., Head Counselor, Women's Residence Halls

SPALDING, WILLIE (Mrs.), B.A., Assistant Head Resident, Corbin Hall

THOMPSON, JANE (Mrs.), Head Resident Emeritus, Corbin Hall

WESTBY, CARL M., B.A., M.A., Head Resident, Craig Hall

FOOD SERVICE

CHAMBERLAIN, D. GERTRUDE, B.S., Dietitian; Instructor, Home Economics

DALTHORP, LOIS M. (Mrs.), B.A., Dietitian; Instructor, Home Economics

GAETZ, E. RAE, B.S., Dietitian; Instructor, Home Economics

KOTSCHEVAR, LENDAL W., B.A., B.S., M.A., Ph.D., Director; Professor, Home Economics

LABER, EVELYN M. (Mrs.), B.A., Dietitian; Instructor, Home Economics

MacARTHUR, ELEANOR B., Assistant Director; Assistant Professor, Home Economics

STEWART, GERTRUDE B., Assistant to Director

MISCELLANEOUS ADMINISTRATION

ARMSBY, LUCILLE JAMESON (Mrs.), B.A., Secretary to the President (Assistant Professor)

CLARK, S. KENDRICK, B.A., Auditor, Business Office

FERGUSON, MARY ELROD (Mrs.), B.S., M.A., Assistant Director Emeritus, Museum and Northwestern Historical Collection (Assistant Professor)

HILLS, WILLIAM J., B.A., M.D., Director, Health Service (Resigned May 1, 1937)

LOMMASSON, EMMA B. (Mrs.), B.A., M.A., Assistant Registrar (Instructor)

MADGETT, EARL W., B.A., Director, Student Activities-Facilities (Instructor)

MONEHAN, THOMAS F., B.A., M.A., Assistant to the Dean of Students

MURPHY, CALVIN L., B.A., Assistant Controller, Business Office

PEKSON, LEONA J. (Mrs.), Assistant Director of Placement Service (Resigned January 15, 1937)

PHILLIPS, RAYMOND V., B.A., M.ED., Ph.D., Director, Counseling and Placement Service (Associate Professor)

SWEARINGEN, T. G., B.A., Director, Planning and Construction Office

*On staff 1956-57, but not 1957-58
MONTANA STATE UNIVERSITY

In 1893 the Third Legislative Assembly of Montana chartered the University of Montana and located it at Missoula. Later legislation called it the State University of Montana. Still later statutes refer to it as Montana State University, by which name it is now generally known.

Missoula is a residential city of approximately 33,000 about 160 miles west of the continental divide on the headwaters of the Columbia river system in west central Montana. Located at an elevation of 3200 feet, it is served by two transcontinental railroads, bus lines operating on the main east-west north-south U. S. highways, and by air.

SUPPORT AND ENDOWMENT

Federal land grants made available during territorial days were allocated to Montana State 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 Montana State University Endowment Foundation, among others, is a separately chartered and managed trust which receives, manages, and distributes private contributions for University purposes.

CAMPUS AND PHYSICAL PLANT

The main campus spreads over 125 acres; and there are extensive adjuncts such as the Golf Course (155 acres), Biological Station (160 acres), the Forest Nursery (200 acres), and the Experimental Forest (20,000 acres). The physical plant includes twenty-eight brick and masonry buildings, of which five were completed in 1953, as well as numerous other structures for storage and other purposes.

Special instructional facilities also include the Biological Station, 80 miles north of the campus on Flathead Lake with buildings for housing and research; the Forest Nursery and the Experimental Forest near the campus; the Wildlife Research Unit; and the University Press, located in the Journalism building. In addition to the general library there is a separate library for the law school. Special museums and collections include those relating to anthropology, biology, geology, and history.

CONTROL AND ADMINISTRATION

Subject to the 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. There is also a local three-member Executive Board for each institution. The immediate administration of each institution is vested in a president.

By statute the State's combined system of higher education is called "The University of Montana." An executive office and executive secretary are located in the State Capitol at Helena, Montana, mainly for the handling of administrative routine between the institutions and the State Board of Education and other state offices and departments.

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 as well as to impose or increase fees is similarly 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, at such times, are already enrolled in the University.

BIological STATION

The University Biological Station is located at Yellow Bay on the east shore of Flathead Lake, 80 miles north of Missoula. The University controls 160 acres, including four islands and also has permission to carry on investigation on Wild Horse Island which has an area of approximately 2000 acres.

Facilities include an administration-recreation building, a four-room laboratory, three one-room laboratories, a kitchen and dining hall, a bath house and thirty one-room cabins.

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 a great variety of opportunity for research.

For further information, write to the Director, Biological Station, Montana State University.

BUREAU OF GOVERNMENT RESEARCH

Research in the fields of state and local government will be formulated, for students, in a Bureau of Government Research. Assistant Professor Robert B. Riecht of the Department of History and Political Science will become the director.

WILDLIFE RESEARCH UNIT

The Montana Cooperative Wildlife Research Unit was established at Montana State University in 1949. The Unit is staffed and supported cooperatively by the Montana Fish and Game Commission, the Fish and Wildlife Service of the U. S. Department of Interior, the Wildlife Management Institute of Washington, D. C., and Montana State University.

The purpose of the Cooperative Wildlife Research Unit is stated in the Montana Cooperative Understanding signed jointly by representatives of the above cooperating agencies as follows: . . . "to provide full active cooperation in the advancement, organization, and operation of wildlife education, research, 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 benefit of 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 Technology.

Graduate work in wildlife may be taken with the area of concentration either in wildlife management or in wildlife technology. It will ordinarily require two years work beyond the Bachelor's Degree to fulfill the requirement for a Degree of Master of Science in Wildlife Technology. Concentration in the area of wildlife management will ordinarily lead to the degree of Master of Science in Forestry or the Master of Forestry degree depending upon the time and curriculum undertaken.

The Cooperative Wildlife Research Unit allocates funds for four or more graduate research fellowships for students toward the degree of Master of Science in Wildlife Technology, or Master of Science in Forestry with the area of concentration in wildlife management. Candidates for fellowships should submit formal applications with a transcript of college credits and letters of reference by March 1.

For further information with regard to curricula and requirements for graduate work in the wildlife field, write to the Unit Leader, Dean of the School of Forestry, or Chairman of the Department of Zoology.

TYPOGRAPHICAL LABORATORY AND PRESS

The Journalism Typographical Laboratory and University Press serves both as a laboratory operation for instruction in the School of Journalism and to take care of the printing of educational, research, and informational materials of Montana State University.

PUBLIC SERVICE DIVISION

The Public Service Division is the administrative agency through which the University carries on its off-campus activities and services. In it are the departments of Home Study and Adult Education, Alumni Relations, Radio Programming, Central Photo Facility, Sports News Bureau, and the Publications and News Service.

In addition, the division works directly with communities.
and groups in community historical pageant-dramas, community surveys, institutes, forums, etc. On campus, Public Service Division cooperates in staging conferences, institutes and short-courses. A lecture and concert bureau is maintained by the division for organizations desiring speakers and programs from the campus.

Within the division are maintained the campus offices of the MSU Alumni Association and the Endowment Foundation.

The division publishes a special bulletin on Home Study and Adult Education offerings, which may be obtained by request from Public Service Division, Montana State University, Missoula, Montana.

**SUMMER COLLEGE**

The Summer Session of ten-weeks is divided into two five-week terms. Students may attend either five-week term or the full ten-week session. The 1958 Summer Session will open June 16 and close August 22; the first five-week term, June 16 to July 18; the second five-week term, July 21 to August 22.

Courses will be offered in all departments and schools except Law and Forestry, including graduate work as well as undergraduate work.

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.

Three regular Summer Sessions, of ten weeks each, satisfy the residence requirements for the Master's degree.

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

Students in the Summer Session who are not registered as candidates for degrees will, upon request to the Registrar, receive a certified transcript for courses completed.

Regular University students may accelerate their programs by taking Summer classes. A full quarter of regular classes is available in most departments and schools.

Full information regarding the Summer Session may be obtained from the Registrar or the Summer College office, in room 206, University Hall.

**ACCREDITATION**

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

**THE LIBRARY**

More than 410,840 volumes and government documents are housed in the library building and in the law school library.

The library receives over 900 periodicals in addition to newspapers and college exchanges.

**FINANCIAL OBLIGATIONS**

### STUDENT FEES

<table>
<thead>
<tr>
<th>Description</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration</td>
<td>$10.00</td>
</tr>
<tr>
<td>Incidental (for laboratory supplies in all courses, locker fees, gymnasium towel service, diploma, etc.)</td>
<td>$39.00</td>
</tr>
<tr>
<td>Total, first quarter in attendance</td>
<td>$79.50</td>
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<tr>
<td>Majors in School of Music pay an additional fee (per quarter)</td>
<td>$20.00</td>
</tr>
<tr>
<td>Non-residents (out-of-state) pay additional (per quarter)</td>
<td>$50.00</td>
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<tr>
<td>Health Service</td>
<td>$5.00</td>
</tr>
<tr>
<td>General deposit (charges for loss, breakage, and fines deducted)</td>
<td>$10.00</td>
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<tr>
<td>Total, first quarter in attendance</td>
<td>$90.50</td>
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<td>Majors in School of Music pay an additional fee (per quarter)</td>
<td>$30.00</td>
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<tr>
<td>Non-residents (out-of-state) pay additional (per quarter)</td>
<td>$70.00</td>
</tr>
<tr>
<td>Health Service</td>
<td>$5.00</td>
</tr>
<tr>
<td>Total, first quarter in attendance</td>
<td>$105.50</td>
</tr>
</tbody>
</table>

**NON-RESIDENT FEES**

Students who have not resided in the State of Montana for at least 12 months immediately prior to entering Montana State University and whose parents are not residents of the state are required to pay the non-resident fee (autum n, winter, spring quarters). For detailed statement of student entitled to exemption from this fee write to the Registrar.

**WAR SERVICE FEE EXEMPTIONS.** The registration and incidental fees are waived for honorably discharged persons who served with the 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.

**LIMITED REGISTRANTS (students registered for less than seven credits):** Registration Fee $10.00; Incidental Fee $15.00; General Deposit, $5.00; Building Fee $3.75; Student Union Building $2.00; Health Service $3.00; Student Activity $10.00 (optional). Non-residents pay $8.00 per credit with minimum of $16.00. Students, who are enrolled as Regular Students, who wish to drop to Limited Registrants, see statement under regular refund schedule.

**LISTENERS (students who enroll for courses without credit)** pay the same fees as students enrolled for credit.

**SPECIAL ATTENDANCE FEE.** Payable by adults not in regular attendance the preceding quarter, and who are not registered for credit and do not participate in class work. Each course (per quarter), $2.00. The Special Attendance privilege is not applicable to laboratory courses, such as Chemistry, Weaving, Swimming, Shorthand & Typing, Office Machines, etc. The regular fees are applicable if attendance is desired in these courses.

**GRADUATE STUDENTS** pay the same fees as undergraduate students except that graduate students whose programs require expensive equipment, laboratory supplies and additional books may be required to pay a graduate laboratory-incidental fee not to exceed $30.00 per quarter. The student activity fee is optional to students who have a B.S. or B.A. degree.
FEES FOR SPECIAL PURPOSES:

LATE REGISTRATION, payable Winter and Spring quarters by students in attendance Autumn or Winter, respectively, who have not registered during the designated period for registration of former students, $2.00.

LATE PAYMENT, payable by students who pay their fees after the prescribed final day for payment of any quarter; for each college day, $1.00, not exceeding a total of $5.00 (not charged students registered for less than seven credits).

CHANGE OF ENROLLMENT, payable for each change of enrollment card filed after the first week of the quarter, $1.00; after the second week, $2.00.

SPECIAL EXAMINATION, for each special examination, $2.00; maximum, $5.00 for any one quarter.

REMOVAL OF INCOMPLETES (not due to illness or fault of institution) $2.00.

TRANSCRIPT OF RECORD (first transcript is free) $1.00. Transcripts ordered at one time in quantities are charged for at the rate of $1.00 for one plus 50¢ each for all additional.

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

CORRESPONDENCE AND SUMMER STUDY. Fees are listed in the Correspondence Study Catalog, the Summer College Bulletin and the Biological Station Bulletin, respectively.

REFUNDS. All fees are refunded to students who withdraw during the period of registration and before the beginning of classes, in which registration is cancelled. No refunds of above fees are made after the fourth week of instruction (except Music).

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.

REGULAR STUDENTS

<table>
<thead>
<tr>
<th>WEEK OF INSTRUCTION</th>
<th>First</th>
<th>Second</th>
<th>Third</th>
<th>Fourth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration ($10.00)</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Incidental ($30.00)</td>
<td>75%</td>
<td>50%</td>
<td>50%</td>
<td>None</td>
</tr>
<tr>
<td>Building ($7.50)</td>
<td>100%</td>
<td>50%</td>
<td>50%</td>
<td>None</td>
</tr>
<tr>
<td>Student Union Building ($4.00)</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Student Activity ($10.00)</td>
<td>100%</td>
<td>50%</td>
<td>50%</td>
<td>None</td>
</tr>
<tr>
<td>Health Service ($5.00)</td>
<td>100%</td>
<td>50%</td>
<td>50%</td>
<td>None</td>
</tr>
<tr>
<td>Non-Resident Tuition ($50.00)</td>
<td>80%</td>
<td>60%</td>
<td>40%</td>
<td>20%</td>
</tr>
<tr>
<td>School of Music Majors</td>
<td>Variates</td>
<td>with number of credits</td>
<td></td>
<td></td>
</tr>
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Regular Students who drop to Limited Registrants

| Registration | None | None | None | None |
| Incidental | $11.25 | $7.50 | $7.50 | None |
| Building | 3.75 | 1.87 | 1.87 | None |
| Student Union Building | None | None | None | None |
| Student Activity | 10.00 | 5.00 | 5.00 | None |
| Health Service | None | None | None | None |
| Non-Resident Tuition | None | None | None | None |

Students who owe bills to the University for fees, fines, board and room in residence halls, and other charges are not permitted to register for the succeeding quarter, secure transcript of record, or obtain diplomas until the obligation is paid or satisfactorily adjusted. Similar action is taken where students owe bills to student organizations whose books are kept in the business offices of Montana State University, including charges for board and room in fraternity and sorority houses.

PAYMENT OF FEES by check in exact amount of bill is preferable. The University does not accept non-bankable paper in payment of bills. Personal checks are not cashed except in payment of University bills.

RAILWAY FARE REFUND. In accordance with the provisions of Chapter 4 of the Session Laws of 1925, enacted by the Nineteenth Legislative Assembly, and under regulations established by the State Board of Education, railroad fare in excess of fifteen dollars actually paid by any student for a round trip by the most direct route available between the home of the Montana resident and Montana State University once each year, will be refunded. The amount of the refund will be based upon the railroad or bus fare over the shortest route and at the lowest rate. Students must present receipts for the fare thus paid.

In order to be entitled to the refund students must carry satisfactorily a normal amount of work, and must be in attendance either throughout the college year or through the summer quarter.

Claims for refunds must be presented within thirty days after the close of the term in which the student was last in attendance.

REQUIREMENTS FOR ADMISSION

Applications for admission should be sent to the Registrar, Montana State University, Missoula, Montana, on a form which may be obtained from the high school principal or by writing to the Registrar at the University. If possible, applications for admission should be sent in at least a month before registration. The following credentials are required: (a) Completed application on forms provided by Montana State University. (b) Official transcript from each college attended, including institutions attended while in military service, carrying a statement of honorable dismissal from the last college attended.

GENERAL ADMISSION. Applicants for admission must be of good moral character. Veterans of any branch of the United States Armed Forces should present a discharge marked other than "dishonorable."

Montana residents, graduates of any fully accredited high school or academy, are admitted to regular standing. The completion of a high school or preparatory course of four years, including three years of English and one year of American history and government, is the standard for regular admission. This includes foreign students.

A non-resident entering freshman must meet the general admission requirements listed above and rank in the upper third of his high school graduating class.

HIGH SCHOOL PREPARATION. Although general admission to the University is granted as indicated above, additional units of high school work are needed for certain professional curricula. High school courses should be chosen to meet requirements for the curriculum selected, otherwise, additional time may be required in college. The student should check the curriculum of his choice and take in high school those courses listed as "needed" where such courses are indicated under "High School Preparation." The "recommended courses" under "High School Preparation" would be helpful, but no loss of time would be involved if the student did not take them in high school.

ADMISSION BY EXAMINATION. A Montana resident not a graduate of an accredited high school may meet regular admission requirements by passing examinations on not less than fifteen units of secondary school work. These examinations must cover the specifically required courses in English and American history and government. Credit is allowed the student for courses taken in an accredited high school; therefore the student need only cover those units of work lacking for general admission. Veterans and in some cases students over 21 years of age may be admitted on satisfactory scores on the High School Level General Educational Development (G.E.D.) Tests.

CONDITIONAL ADMISSION. A Montana resident who has attended an accredited high school for four years, but lacks one or more of the courses needed for a B.A. graduation theretofrom other than the required courses in English and American history and government, will be admitted on condition that the deficiency is made up within a year.

ADMISSION BY TRANSFER. A non-resident transfer student with a year or more of college work must meet general admission requirements and have a C- average (2½ times as many grade points as credits) for all courses.
for which he has registered and received completed grades. A non-resident transfer student with less than a year of college work must meet general admission requirements, rank in the upper third of his high school graduating class and have a C+ average on all credits previously registered and received completed grades. A transfer student who is a resident of Montana must meet general admission requirements, be eligible to return to the school from which he is transferring, and his record must be such as would ensure his reinstatement at the University had he been one of its students. Credits earned at Montana State College, Montana School of Mines, Northern Montana College, Eastern Montana College of Education, and Western Montana College of Education may be transferred to the University. However, a number of highly specialized curricula are offered at these units of the University of Montana; consequently a student who changes his major field of study either while continuing in an institution or changing from one institution to another must expect to lose time thereby. Excess credits earned in completing a two-year course of junior college rank may not be used to decrease the two years usually required to complete senior college work at Montana State University.

ADMISSION AS SPECIAL STUDENTS. Persons 21 years of age or over who are not graduates of high schools, who cannot offer all the requirements for admission, and who are not candidates for degrees may be admitted as special students upon passing general aptitude and English placement tests and satisfactory evidence that they are prepared to pursue successfully the courses they desire. Such 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 sessions, until all entrance requirements for admission to regular standing are made up.

UNCLASSIFIED STUDENTS. Students permitted to select their subjects without reference to the requirements of any prescribed course of study may register as unclassified students.

REGISTRATION AND GENERAL REGULATIONS

Time for registration is set aside during Orientation week. Two days at the beginning of other quarters are also used for this purpose. 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 this choice, the head of his major department or college in the University in which the curriculum is offered becomes the adviser.

ORIENTATION WEEK. The first week of autumn quarter is set aside for the orientation and registration of new students. The program includes: (1) Acquainting the student with the campus, the classroom buildings, and residence halls. (2) Explaining the University program in detail—the types of instruction offered and the careers for which a student may prepare at the University. (3) A physical examination. (4) Various tests to help the student determine University aptitudes and the courses in which he or she will learn most effectively. (5) Social gatherings at which students become acquainted with fellow classroom, students of other classes, and members of the faculty. (6) Official registration in the University, with the assistance of a member of the faculty in the selection of courses.

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

MAXIMUM CREDIT LOAD. Except for students registered in an approved curriculum, the maximum credit load per quarter is as follows: (1) For Freshmen, fifteen credits plus physical education and ROTC as required; (2) For Sophomores, sixteen credits plus physical education and ROTC as required; (3) Juniors and Seniors may register for seventeen credits except that students with approximately B average grades may be permitted by their advisers to register for eighteen credits. In addition to those allowed numbers of credits per quarter, freshmen may take two additional credits and sophomores one additional credit selected from applied or ensemble music, applied acting and stagecraft, current events and imaginative writing. The student must maintain a C average during the previous quarter in residence in order to be permitted to carry these added credits. Pre-college courses in accounting, social sciences, or chemistry which carry no credit, count toward the maximum load according to the number of class hours per week.

CHANGES OF ENROLLMENT. Applications for changes in enrollment must be made by the student on proper forms and filed at the Registrar’s Office.

WITHDRAWAL FROM A COURSE. During the first four weeks of a quarter, a student may withdraw from a course in which he has registered by filing with the Registrar’s Office the proper forms secured from that office and signed by the student’s adviser, the instructor in the course and the chairman of the department or school in which the student is majoring. A “W” (withdrawal) will be assigned.

Withdrawal from a course after the fourth week is permitted only under unusual circumstances and then only by petition approved by the adviser, the instructor, the chairman of the student’s major department or school and the Chairman of the Board of Advisers. In such cases the instructor must indicate whether the student is passing or failing. A grade of “F” is recorded in all instances unless changed for due cause by those approving the petition. If the grade is changed, a grade of “W” will be assigned. All withdrawals must be formal and must be recorded by the student with the Registrar on proper forms secured from the Registrar’s Office. During the ninth week the student who withdraws receives a grade, usually incomplete.

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. When withdrawal forms are 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. After the ninth week, the student who withdraws receives a grade, usually incomplete.

REPETITION OF COURSE. When a course in which a student has previously received credit is repeated with proper authorization, the credit and the first grade received are automatically cancelled and the credit and second grade are recorded, even if the second grade is lower. In order to obtain authorization to repeat a course, the student must file with the Registrar at the time of registration a petition carrying approval of the adviser, the chairperson of the department in which the student is majoring and of the chairman of the department in which the course is given.

INDEPENDENT WORK. Credit is allowed superior students of junior and senior standing for independent work in topics or problems chosen by themselves with the approval of the department or school and with the supervision of instructors. Such work must be registered for at the beginning of a quarter. The student cannot obtain a larger number of credits than he is registered for, but a smaller number may be completed and credit obtained with the instructor’s approval.

VETERAN REGISTRATION. Veterans’ subsistence payments from the Veteran’s 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 under the Korean G. I. Bill.

DEGREES OFFERED

Bachelor’s, Master’s and Doctor of Education degrees are offered at Montana State University. More details about degrees offered and the requirements for degrees are to be found in the section of the guidebook dealing with the Graduate School and also under the various alphabetically listed curricula.

GRADING SYSTEM

The class work of the student will be rated on a system of letter grades:

A—Work of the best grade; B—work better than average; C—average work; D—work below average, but barely passing; F—failure; +—pass without defining grade. The grade I—Incomplete is given if all the work in a course
has not been completed and there is sufficient reason for this. An incomplete must be removed not later than one calendar year of attendance after the incomplete grade was assigned.

In thesis and law courses the letter "n", not accompanied by a grade, is assigned at the end of each quarter to indicate that the student is entitled to continue the course; upon completing the course, a grade is given which applies to the whole course.

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; 1 grade point for each credit of D. In a subject in which an "incomplete" grade has been received, grade points are counted only after this incomplete has been removed.

To compute grade point averages for graduation, the total number of grade points for courses offered for graduation will be divided by the total number of credits earned in these courses.

REQUIREMENTS FOR GRADUATION

CANDIDACY FOR A DEGREE. Students of 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 Official 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. The work in Montana State University is measured in terms of credit. One credit represents three hours of time per week for one quarter of twelve weeks. The time required for each credit may be distributed in any combination among preparation, recitation, lecture, or laboratory work. A total of 180 credits plus six credits in required physical education is necessary in all courses for graduation with a bachelor's degree except that more are required in Forestry, Law and Pharmacy. Candidates for the degree of Bachelor of Science in Forestry must complete 192 credits in addition to regular requirements in Physical Education and ROTC. Candidates for the degree of Bachelor of Laws must complete three years of Law totaling 126 credits in addition to the entrance requirements of the School of Law. Candidates for the degree of Bachelor of Science in Pharmacy must complete a five year course. Candidates for the Bachelor of Arts degree in the College of Arts and Sciences must complete 88 credits in that college. This includes credits in Art and Drama.

CREDITS REQUIRED FOR A MAJOR. Students may be required to complete from 45 to 60 credits in the chosen field. For education majors, the number of credits is from 40 to 60. In curricula allowing 5 credits of a survey course to count as part of major requirements, the total maximum of 80 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, Music, or Pharmacy. Exceptions to these regulations may be made on the basis of entrance credits in the Departments of Foreign Languages and Mathematics.

Not more than 65 credits in one foreign language and not more than 90 credits in all foreign languages may be counted toward graduation in that area.

Not more than 90 credits of English, Drama, and Speech for a combined major and teaching minor may be counted toward graduation.

Not more than 28 credits in ROTC nor 15 credits in religion may be counted towards graduation.

Not more than 28 credits in ROTC nor 15 credits in religion may be counted towards graduation.

Except in the School of Music, not more than 90 credits in all foreign languages may be counted towards graduation.

Not more than 12 credits in Dance, including any Ballet courses taken as physical education, may be counted towards graduation.

Only students majoring in Business Administration, those taking a teaching major or minor in Business Administration, or those following the curricula in Secretarial-Home Arts 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.

GRADE POINT REQUIREMENTS. The average of the student's grades on the credits offered for graduation must equal the official University average passing grade of "C". A "C" average is required for all courses in the chosen field of study for which a grade is received. A transfer student must meet the grade point requirement on credits earned at Montana State University as well as on his entire record.

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 beginning majors.

Students whose work falls too far below the C average required for graduation are, under certain circumstances, dropped from the University. Students are dropped for the following reasons: (1) In any quarter the student receives F's in courses whose credits total more than 10; (2) The student receives F's in two successive quarters in courses whose credits total more than 15; (3) The student's grade point deficiency, number of hours of F, or the combination of the two exceeds 30.

A deficiency score is the number obtained by adding to the grade point deficiency the total number of credits of courses in which F has been received. This score may be based solely on F's or on any other form of deficiency. If a student retakes a course in which he received an F and receives a passing grade, this eliminates the penalty for the F. In case the student has less than a C average on credits earned, he will have a grade point deficiency which will be the difference between twice the number of credits earned and the student's total grade points.

After a student has been dropped for low grades, he is usually not readmitted until three quarters have passed. However, the Academic Standards Committee may, if convinced that the circumstances warrant, readmit upon his appeal any student at any time.

SPECIALIZATION. A student must select a major field of study before entering the Junior College of Science University. Usually the selection will be made earlier.

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

(1) Physical Education, 6 quarters (6 credits) required of all freshmen and sophomore students unless excused for cause. Discharged veterans and students 27 or more years of age are excused from this requirement. All students are also required to pass the University swimming test.

(2) ROTC, 6 quarters (10 credits) required of all freshmen and sophomore men unless excused for cause. This work must be completed during the first six quarters unless deferred upon petition by the student. Veterans are excused from this requirement. Two quarters of Air Science 110, Air Force Band, may be substituted for Air Science or Military Science 103 and 203. Students may transfer from Army to Air ROTC or vice versa with permission of the PAS and FM&AT.

(3) Freshman Composition English 104-105, 2 quarters (10 credits) required of all freshmen and sophomore men unless excused for cause. All students registering for the first time in either of these freshman composition courses take a placement examination; those who fail to demonstrate an acceptable college standard must take a remedial English course before enrolling in English 104 or 101. Students who receive "A" in English 102 or 104 may substitute English 201 for 105 or 103.

GROUP REQUIREMENTS. All candidates for the Bachelor's degree must present for graduation at least twelve credits from each of the following: English 101-102-103, 3 quarters (9 credits). All students registering for the first time in either of these freshman composition courses take a placement examination; those who fail to demonstrate an acceptable college standard must take a remedial English course before enrolling in English 104 or 101. Students who receive "A" in English 102 or 104 may substitute English 201 for 105 or 103.

GROUP REQUIREMENTS. All candidates for the Bachelor's degree must present for graduation at least twelve credits from each of the following: English 101-102-103, 3 quarters (9 credits). All students registering for the first time in either of these freshman composition courses take a placement examination; those who fail to demonstrate an acceptable college standard must take a remedial English course before enrolling in English 104 or 101. Students who receive "A" in English 102 or 104 may substitute English 201 for 105 or 103.
12—ORGANIZATION

Group I. Astronomy, Bacteriology, Botany, Chemistry, General 131-132-133 or General 131 and 10 credits from other sub-groups, or 131-132 and 5 credits from other sub-groups, Geology, Mathematics, Physics, Zoology.

Group II. Anthropology, Economics, Geography, History, Political Science, Sociology.

Group III. Art (231-232-233 only), English (literature courses only), Foreign Languages (213-215, and other literature courses only), General 151-152-153, or part of it with credits from another sub-group, Music (134 only), Philosophy, Psychology, Religion.

In the School of Forestry, Group II requirement may be partially satisfied by Forestry 421, 4 cr. Five credits of Speech are accepted as part of the Group III requirement.

Elementary teachers may fulfill Group I requirements with General 125 PHYSICAL SCIENCE FOR TEACHERS, General 126 BIOLOGICAL SCIENCE FOR TEACHERS, and Mathematics 150 THEORY OF ARITHMETIC.

FOREIGN LANGUAGE REQUIREMENT. For the degree of Bachelor of Arts in the College of Arts and Sciences, Bachelor of Arts in Business Administration, Bachelor of Arts in Journalism, a knowledge of either a modern or classical foreign language is required. This requirement may be satisfied by demonstrating a reading knowledge at the level of attainment indicated by the completed course in which a student who has passed at least five quarters in a language, by taking three years of the language in high school and passing a test thereon at the University, by two years in high school plus one year in the University, by one year in high school plus one year (three quarters) in the University, by five quarters (23 to 25 credits) in one language at the University, or by three quarters or equivalent in each of two foreign languages. A student may be allowed credit toward the fulfillment of the language requirement for high school language study according to the level of attainment on a required placement examination which also indicates the level of the course in which he may continue in the University. Foreign language examinations are given and certified by the Department of Foreign Languages.

Arrangements for reading examinations must be made by the end of the fourth week of any quarter. Such examinations must be taken at least two weeks before final grades for the quarter are due.

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

VETERANS' CREDIT. Upon application veterans may be granted credit for work completed in special service training courses in accordance with the recommendations of the American Council on Education, and not more than 12 "unassigned" credits at the rate of three credits for the first three months of service and one additional credit for each subsequent four months of service. Nine quarter credits are allowed for completion of the senior phase of the Marine Corps Platoon Leaders course.

RESIDENCE REQUIREMENTS. Students who transfer credits earned elsewhere and seek a degree from Montana State University must, in addition to meeting other requirements of the University, earn not less than 45 credits, and devote not less than three quarters study to the University; and 35 of the last 45 credits earned for a degree must be earned in resident study at the University.

REQUIREMENTS OF PARTICULAR CURRICULA. Candidates for a Bachelor's degree must comply with any requirements announced under a particular curriculum, in addition to the minimum 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 departents adopting or using these senior examinations may excunce 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 in addition further oral or written examinations may be given. Examinations are given the last quarter of senior residence and are arranged in each 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 given by the department or school concerned and the committee on admission and graduation. For details, check under the alphabetically listed curricula in the guidebook.

SENIOR EXAMINATIONS FOR HONORS. A student who wishes to be graduated with honors or high honors must meet the following requirements: (1) for honors, in the beginning of his last quarter he must have an index of at least 3.1 for all credits registered for in his entire record as well as in the major field; (2) For high honors, at the beginning of his last quarter he must have an index of at least 3.5 for all credits registered for in his entire record as well as in the major field. A student who transfers credits earned elsewhere to this university must meet the scholastic index indicated on grades earned at Montana State University as well as on his entire record as of the time he takes an examination, oral or written or both, as determined by the major department or school; (4) He must pass the examination with a grade of "A" or "B"; (5) After these qualifications have been met, the candidate for honors must then receive the recommendations of his major department and of the faculty of Montana State University.

STUDENT SERVICES

At Montana State University, an integrated program of student services is coordinated through the Division of Student Services and Student Service, an expansion of those services partially expanded the scope of this service in the past year, reflecting an awareness of the significance of an adequate Counseling Center. This expansion has taken the form of increased staff, expanded office space, facilities, and equipment.

The Counseling Service has a general function of giving guidance and assistance to students in the following areas: 1) the selection of appropriate area of major study; 2) the assessment of abilities and the most efficient, effective application of those abilities; 3) admission to the most effective pattern of learning in college; 3) diagnoses of difficulties leading to less than maximum performance academically, and the use of remedial procedures where indicated; 4) in dealing with personal adjustment problems, understanding in relationship to the client's friends, home, school, and the community as a whole, leading to more effective citizenship; 5) the selection of appropriate vocational area.

The Counseling Service has a further responsibility to: 1) administer, report, and aid in the interpretation of freshman placement tests and other standardized tests; 2) act as a consultant to University departments and high schools in the establishment of effective testing programs; 3) assist University personnel and welfare groups in their guidance function; 4) assist advisers, upon request, in working with students.

STUDENT HEALTH SERVICE. The Student Health Service fee provides for the following facilities and services.

1. Certain medical care in the Health Service office and emergency service.

2. Certain medicines dispensed in the Health Service office and emergency service. Prescriptions will be filled by the M.S.U. Prescription Pharmacy in the Chemistry-Phar-
are provided by the Health Service as follows:

1. The 11th to 20th days of infirmary care per quarter are charged to the student at $4.00 per day. The 21st to 30th days of infirmary care per quarter are charged to the student at $8.00 per day. In no case is infirmary care provided in excess of 30 days per quarter.

2. Injuries or accidents occurring during University-required activities (this does not include intercollegiate athletics):
   a. Infirmary care as listed in the above sections, item 9 and item 1.
   b. Out-patient treatment at the Health Service without charge insofar as Health Service facilities and personnel permit, at the discretion of the staff physician.
   c. Hospitalization: When recommended by the staff physician or authorized consultant, hospital board and room charges are paid to a maximum of $50.00.
   d. Medical and surgical fees of authorized consultants: Fifty per cent of the fee listed in the "Average Fee Schedule" of the Montana Medical Association (1952), but not in excess of $75.00.
   e. X-ray and laboratory fees necessitated by the injury and ordered by the staff physician or authorized consultant, but not in excess of $20.00.

3. Injuries occurring during University-sponsored activities: Treatment is provided for one injury or accident per year as listed below.
   a. Out-patient treatment at the Health Service insofar as facilities and personnel permit, at the discretion of the staff physician. Charges are made to cover the cost of supplies and equipment used.
   b. Infirmary care as described in the above sections, item 9 and item 1.

The Health Fee and the Student Health Service facilities are not intended to be adequate to provide complete medical care. Following is a list of some of the items for which no allowance or payments are made:

1. Eye refraction and eye glasses.
2. Dental care and dental X-ray examination.
3. Special nurses.
4. Injuries occurring soon after the use of or illnesses due to alcoholic beverages.
5. Obstetrical and post-partum care.
6. Physical examination for outside employment.
7. Injuries occurring on or off the campus in activities not sponsored by the University.
8. Medical care of student's dependents.
9. Medical care between quarters or during other school vacations.
10. Injuries and illnesses coming under the provision of regular insurance carriers.
11. Treatment of chronic illness or disease antedating registration at the University.
12. Hospitalization, medical, surgical and ancillary fees except as listed above.

PLACEMENT SERVICE. Through the University Placement Service, Montana State University endeavors to assist its graduates in finding positions suited to their interests and training. The services are also extended to business and other organizations in search of University-trained personnel. The Placement Service also aids University graduates in later years respecting opportunities for which both a degree and experience are required. A registration fee of $5.00 is charged those not registered as students in the University.

Similar services are provided for persons interested in teaching in the public schools. School authorities in need of teachers, principals, and superintendents use this facility. The Placement Service also aids teachers, principals, and superintendents in finding positions for which they have become qualified by training, ability, and experience.

STUDENT HOUSING. Residence facilities include six residence halls, three housing areas for married students, a women's cooperative house, eight fraternity and six sorority houses, and University-approved rooms in private homes.

Freshmen, both men and women, who do not live in their own homes while attending the University are required to live in the residence halls unless excused in special cases by the Deans of Students. Upperclass women under 21 years of age are also required to live in women's residence halls or with approved student living groups; those over 21 may obtain permission to live in approved private homes or boarding houses but not in apartments.

RESIDENCE HALLS. Application forms for residence and detailed information may be obtained by writing the Registrar's Office, Montana State University. A $10.00 deposit is required with each room application. If a room reservation is cancelled, notice in writing must be received by the Manager of Residence Halls on or before September 3 for fall quarter, December 9 for winter quarter, and March 12 for spring quarter. Students will be assigned to the residence halls upon arrival. Students who live in the residence halls are required to board in the Lodge.

Rooms in the residence halls are furnished with single beds, chests or dressers, study table, chairs, and a waste basket. Each bed is supplied with a mattress, mattress pad, pillow, pillow case, sheets, and two woolen blankets. Window curtains are provided and maintained. Students should bring a bed spread, dresser scarf, towels, wash cloths, water glass and an extra blanket, if needed. A study lamp and a small rug are desirable. Students should not bring electric cooking equipment, electric irons, furniture, or curtains.

Social life in the halls is encouraged through residence hall clubs and numerous activities. Adult counselors cooperate with the students in making living in the halls enjoyable and beneficial. A fee of $2.00 per quarter is assessed the residents in each hall. This fund is expended for social activities which are planned by the group.

Board is provided in the Lodge for the residents of all halls. Experienced dietitians provide appetizing and nutritionally adequate meals.
rates: Board for the quarter is $141.00 to $160.00 depending upon the length of the quarter. Board rates are calculated at $1.90 per day. Room rates by the quarter, per person are: One in a room, $79; two in a room, $60; multiple, $48. Rates are subject to change.

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 be allowed to suffer unduly in quality or quantity. New additional services, when demanded, also require additional charges. Such charges are fixed from time to time, effective upon the dates similarly specified.

FAMILY HOUSING. Married students may apply to the Family Housing Office for accommodations in low-cost, temporary housing or permanent apartment-type units. One, two and three bedroom units are available.

WOMEN'S COOPERATIVE HOUSE. A cooperative house provides an opportunity for women to gain experience in group living while reducing expenses by sharing in the work of the house. This residence is under supervision of an advanced housemother. Information may be obtained by writing to the President, Synadelphic House, 601 Daly Avenue, Missoula, Montana.

FRATERNITY AND SORORITY HOUSES. Eight national fraternities and six national sororities maintain their own residences under University supervision. Membership in fraternities and sororities is by invitation, but eligibility for pledges in national fraternities and sororities is by scholarship accomplishment during the first quarter in the University. Fraternity and sorority houses are under the immediate supervision of resident housemothers, who are appointed with the approval of the Associate Dean of Students.

STUDENT ACTIVITIES CENTERS. The Lodge is the new extra-curricular center of student life. It is the home of student social and governmental activities. Every student registered at Montana State University, with the exception of freshmen, is a member of a Lodge program and entitled to use the building. Here students may hold meetings, have parties, meet friends, and participate in activities. Facilities in the Lodge include a student organizations center, conference rooms, social center, reading room, coffee shop, lounge, games room, and food service. Bowling alleys and a year-round skating rink are also maintained by the Lodge management.

The Student Arts and Crafts Building offers additional facilities for student crafts, arts, movies, assembles, etc.

LOANS AND EMPLOYMENT. Limited loan funds are available to qualified upperclassmen in need of financial aid to complete their college work. Information about these may be obtained from the Office of the Dean of Students.

Many students meet costs of attending the University by part-time work and scholarships. For freshmen to try to earn all expenses is inadvisable. Students should plan to use their available funds during the first year and increase their earnings as they become familiar with University life and work. For unusually qualified freshman students a Work Scholarship program is maintained. Students applying for Work Scholarships should have a high B or A average in high school.

SCHOLARSHIPS AND PRIZES. The University offers many rewards for outstanding academic achievement. Many are available through the generosity of friends and alumni of the University. Graduate scholarships are administered by the Graduate Dean and undergraduate scholarships by the Dean of Students. Prize awards related to specific departments are awarded by the department concerned. A list of scholarships and prizes may be secured by writing to the Dean of Students or to the Registrar.

STUDENT STANDARDS AND AFFAIRS. Consistent with its aims and purposes, the University maintains all its students to conform to the usual standards of society and law-abiding citizenship. Every organization affiliated with the University or using the name of the University is required to conduct all its affairs in a manner creditable to the University. Organizations and individuals will be held responsible to this principle. Gambling is not permitted in University buildings or in University-approved housing.

The possession or consumption of intoxicating liquor in the following circumstances or places is contrary to University standards:

1. By University students, visitors, or guests (a) when they are under 21 years of age, or (b) with or in the company of such persons under age, or (c) in a drunken or disorderly manner, or with the appearance thereof; and

2. By anyone (a) on the campus, University property, or at University-approved quarters of students, except that University family dwellings are governed by separate rules, or (b) at University affairs including athletic events, or (c) at organized gatherings of students.

Persons who do not wish to abide by these standards, or for any reason are unable, are strongly advised not to enroll at Montana State University.

ABSENCE INCURRED THROUGH ILLNESS. A student who is absent on account of illness should report the illness immediately to the Health Service and obtain a written excuse upon return.

ABSENCE INCURRED THROUGH PARTICIPATION IN DEPARTMENTAL OR EXTRA-CURRICULAR ACTIVITIES. Absences incurred when a student is on assigned departmental activity will be reported in advance to the Office of the Dean of the Faculty. When a student is representing the University in extra-curricular activities (a) the absence will be reported in advance to the Dean of Students by those in charge of the activity. The offices will decide in each case whether notification to faculty members concerned shall be made by group notice or by individual leave of absence forms. It is the student's responsibility to make certain, prior to departure, that his instructors have been notified, and that they agree to the absence.

LEAVES OF ABSENCE. Students who are 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 sudden 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.

OFFICIAL RECOGNITION OF STUDENT ORGANIZATIONS. Every student organization is required to register with and obtain recognition from the Dean of Students Office. Until such time as recognition has been granted, the organization is not entitled to the use of space in campus buildings, mention of its activities in campus publications, or the use of the name of the University.

FINANCIAL OBLIGATIONS OF STUDENT ORGANIZATIONS. The State Board of Education has made the following rule: "No contract shall be entered into and no financial obligation assumed by any student organization without the approval of the President or some member of the faculty designated by him."

FINANCIAL OBLIGATIONS OF INDIVIDUAL STUDENTS. 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 diplomas until the obligation is paid or satisfactorily adjusted. Similar action is taken when students owe bills to student organization whose books are kept in the business offices of Montana State University, including charges for board and room in fraternity and sorority houses.

SOCIAL FUNCTIONS. University social functions which are commenced or continued after 8:30 p.m. are to be held only on Friday and Saturday evenings, or the evening preceding a holiday and are to close not later than midnight. Exceptions to these rules may be made by the Associate Dean of Students.

STUDENT MARRIAGES. Any marriage, either party of which is a student of the University, must be publicly announced. For this purpose notice of the marriage must
be filed promptly with the Registrar. All students on matriculation must indicate on the entrance blank whether married or single. Falsification or willful suppression of any information called for on the form will be ground for cancellation of registration.

ACTIVITIES

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 extra-curricular activities are student government, societies and clubs of students engaged in particular studies, professional and honorary organizations, athletic clubs or teams for men or women, student publications, musical organizations, church groups, and residence hall clubs.

The new Auditorium-Field House occupies a ground area approximately the size of a standard city block. Mov­able seats, stages, floors, and other equipment make it usable as an auditorium, arena, practice field, etc. There is seating for over 6,000 for basketball, 4,000 for shows or concerts. Two large lobbies serve for displays and smaller meetings. It is to be used for convocations, commencement exercises, alumni reunions, pageants, horse shows, military drill and formations, dances, basketball games, and indoor athletic practice or exhibitions.

ATHLETICS. Athletics, including intercollegiate athletics are a useful and valuable part of the University program for the development and growth of interested students. Facilities are provided for participation in some form of athletics by every member of the student body. Montana State University is a member of the Mountain States Athletic Conference (Skyline 8) and adheres to all regulations of the Conference regarding eligibility. Aid to students participating in athletics may be given only in conformity with the regulations of the Mountain States Athletic Conference.

ANNUAL INTERSCHOLASTIC. For more than fifty years Montana State University has held an annual high school invitational meet for track and field contests, golf and tennis tournaments, a declamatory contest, Little The­ater Festival, interscholastic debate, and meetings of the Interscholastic Editorial Association.

INTERCOLLEGIANATE DEBATE. Montana State University engages in debate with the leading universities in the Northwest and occasionally with eastern and foreign un­iversities, in addition to the regular debates, teams from Mont­ana State University make a tour of the state each year. The activity of debate at the University affords opportunity for students in public address to combine academic, class, and practical experience.

PUBLICATIONS. The Associated Students of Montana State University publish a newspaper, The Montana Kaimin. The paper has become a permanent factor in campus life.

The Sentinel is a year book published by the Associated Students of the University. It contains a valuable record of the activities of each year.

Venture, a literary publication, is also sponsored by the Associated Students.

ORGANIZATIONS

The entire student body is organized into one society known as the Associated Students of Montana State Univer­sity. Every organization, through appropriate committees and officers, has charge of matters of general concern, such as athletics, oratory, debate, and entertainment. The Associated Women Students is an organization made up of all women students in the University for the purpose of regulating matters pertaining to the student life of its members.

The Student Judicial Council, a student elected and appointed board to which authority has been delegated by the University to act on violations of certain types of social standards. Its prime responsibility, however, is that of developing high social standards among the members of the student body.

The Religious Emphasis Council, Student Christian Association, and various church clubs and associations carry on work for the religious and social life of the University.

In addition to several small musical ensembles, there are three college-level and two professional music organizations: The University Choir, Choral Union, Choral Ensembles, Jubilees, University Symphony Orchestra, University Symphonette, the University Symphony Band and the Marching Band. These organiza­tions provide music for university events during the year, and furnish an opportunity for all students who have musical talent to cultivate it as well as to participate in the social pleasures pertaining to such organizations.

The “M” Club is an organization of all Montana State University men who have won a letter in any branch of athletics.

The Montana Masquers is the University dramatics organ­ization, open to students who have distinguished themselves in the arts in any capacity such as acting, stage managing, costuming, designing, etc. A series of plays is given throughout the year in Missoula, and occasionally a tour is made of the state.

Penetralia Chapter of Mortar Board is a national honor­ary organization for senior women devoted to service and promoting the best interests of the University.

Silent Sentinel is a local honorary organization for senior men chosen for their service and leadership in campus citizenship.

Bear Paw is an honorary for sophomore men who have evidenced loyalty and a desire to serve the University.

Alpha Phi Omega is a national service fraternity composed of college and university men who are or have been previously affiliated with the Boy Scouts.

Tanan-of-Spur, as a national honorary, recognizes out­standing sophomore men who have maintained high scholarship, leadership, character, and service.

The Women's Athletic Association is an organization devoted to the development of interest in the various sports for women.

The “M” Club (Women) is an athletic honor society for women.

Alpha Lambda Delta is a national honorary for fresh­men women who have maintained high scholarship.

Phi Kappa Phi is a national scholarship honorary for men and women who evidence high scholarship and charac­ter.

The Association of United States Army Company is a national military organization for advanced Army ROTC students devoted to increasing interest in military activities, establishing standards of leadership and devotion to duty, and the development of those qualities essential to the effi­cient officers of the Armed Services.

Arnold Air Society is a National Honorary Society for students devoted to increasing interest in Air Force activities.

Pershing Rifles is a national honorary for Basic ROTC students who demonstrate a high military aptitude. Selection of members is based upon a consideration of leadership qualities, military proficiency and academic ability.

Angel Air Flight is a local women’s Air Force honorary society, organized to add color to military ceremonies and be of service to the campus.

The various departments and schools in the University have professional clubs and honorary organizations for their own students.
ORGANIZATION OF INSTRUCTION

For administrative purposes, various courses are organized in Departments, Schools, or Colleges as shown immediately following. The detailed listing of curricula and courses later in the guide is alphabetical, and includes combined curricula.

COLLEGE OF ARTS AND SCIENCES

Bacteriology
Biology
Botany
Chemistry
Economics
English
Foreign Languages
French
German
Greek
Italian
Latin
Russian
Spanish
Geography
Geology
History and Political Science
Health and Physical Education

SCHOOL OF BUSINESS ADMINISTRATION

Accounting
Banking and Finance
Business Teaching
General Business
Industrial Organization and Management

SCHOOL OF EDUCATION

Administration and Supervision
Elementary Education
Guidance and Counseling
Secondary Education

THE COLLEGE OF FINE ARTS

Art
Dance
Drama
Music Education
Elementary Teacher Training
Secondary Teacher Training
Applied Music
Organ
Piano
String Instruments
Voice
Wind Instruments
Theory and Composition

SCHOOL OF FORESTRY

Forest Conservation
Forest Economics
Forest Engineering
Forest Fire Control
Forest Management

SCHOOL OF JOURNALISM

Advertising Training
Community Journalism
Magazine Training

SCHOOL OF LAW

SCHOOL OF PHARMACY

AFFILIATED SCHOOL OF RELIGION

COURSE NUMBERING SYSTEM

Effective starting with the summer of 1957, all courses are numbered as follows:

001-099 Courses below college level. No college credit given.
100-199 Freshman courses
200-299 Sophomore courses
300-399 Junior courses
400-499 Senior courses
500-699 Graduate courses (masters level)
700-799 Graduate courses (doctoral level)

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

KEY TO COURSE DESCRIPTIONS

In describing courses, abbreviations and symbols are used as follows:

106 (13) Indicates a one quarter course The first number, 106 is the new number. The number in parenthesis is the one used before the summer of 1957.

104-105 (11ab) Two quarter course. Unless otherwise stated the first quarter is required before the second quarter may be taken.

101-102-103 (12abc) Three quarter course. Unless otherwise stated, 101 is prerequisite to 102 and 102 is prerequisite to 103.

1 Q. 2 Q. or 3 Q. Indicates the length of the course in quarters. These courses would be 1 quarter, 2 quarters, 3 quarters in length respectively.

A, W. S. Su, Indicate quarters in which the course is offered: Autumn, Winter, Spring and Summer respectively.

5, 5, 5, 5, 5. Such numbers appearing after the quarters offered indicate the number of credits per quarter allowed for the course. This illustrates one quarter, two quarter and three quarter courses. If figures are not given, the number of credits will be determined on an individual basis by the student’s adviser and the school or department concerned.

(5-4) Such numbers appear only in descriptions of laboratory sciences and Psychology. The first number indicates the number of class hours per week and the second number shows the number of hours of laboratory each week.

(0-3/cr) A laboratory course in which the student does 3 hours laboratory per week for each credit earned.

Prerequisite: Before a student may register for courses requiring prerequisites, he must take the courses listed after “Prerequisites” or otherwise satisfy the instructor of his ability to take the course. Instructors must file a waiver of prerequisite form with the Registrar for any student allowed to take a course without meeting the prerequisites as stated for the course. Unless otherwise indicated, numbers appearing after “prerequisite” are courses within the particular department or school.

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 300 or 400 series. Courses under the second heading may be taken for graduate credit if the student secures proper authorization from the Dean of the Graduate School. Courses under the last heading may be taken by graduate students only.

The University reserves the right to withdraw any course for which fewer than five students are enrolled before the opening of the course. Such courses may be given only in specific cases and with written approval of the President.
ANTHROPOLOGY is a field in social science concerned with the behavior of people in groups, particularly societies and cultures, and the institutional arrangements under which people live. It deals with pre-literate or primitive societies.

Four years are required for the Bachelor of Arts degree, which may be earned in either Anthropology or a combination of Sociology and Anthropology. Anthropology courses stress both archaeology and ethnology and several involve laboratory and field work.

Graduates may engage in teaching, research, or government service. There are many opportunities for scholarships or fellowships in graduate work.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE. In addition to the general requirements for graduation listed earlier in the guidebook, fifty credits in departmental courses are required for the Bachelor of Arts degree with a major in Anthropology. A classical or modern foreign language, 5 quarters (23-25 or a reading knowledge at the level of attainment expected of a student who has passed five quarters in a language is required. At least 30 of the 50 major credits must be in anthropology courses. Sociology 101, 205, and 303 and Social Work 181 must be listed earlier in the guidebook, fifty credits in departmental courses are required for the Bachelor of Arts degree with a major in Anthropology. The origins and distribution of aboriginal cultures in North America is required. Remaining courses for the major may be selected from any courses in the department. Religion 304 may be counted toward a major in anthropology.

FOR UNDERGRADUATES

122 (15) ELEMENTARY ANTHROPOLOGY. 1 Q. A. W. Su. 4. Man and his cultures. Culture growth and change.

153 (1) SOCIAL ANTHROPOLOGY. 1 Q. W. S. Su. 5. Institutions as exemplified in primitive religion, economics, political structures, art, and music.

251 (19) RACE AND MINORITIES. 1 Q. A. 3. Problems of assimilation of racial and cultural minorities.

FOR UNDERGRADUATES AND GRADUATES

351 (138) PREHISTORIC CULTURES. 1 Q. W. 3. Prerequisite: Anthropology 152 or 153 or equivalent. A field course in the study of the origins of man and his cultures, up to the Neolithic, in Europe and the Near East. Offered even numbered years.

352 (139) ARCHAEOLOGY OF MONTANA. 1 Q. S. 3. Prerequisites: Anthropology 152 or 153 or equivalent, and consent of instructor. 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 demonstrated. Offered even numbered years.

353 (190) ARCHAEOLOGICAL SURVEY. 1 Q. 3-6. Any quarter in which field parties are organized. Prerequisite: Anthropology 152 or 153 or equivalent. A field course in Montana archaeology. Total credit allowed: 18.

354 (149) OLD WORLD ARCHAEOLOGY. 1 Q. S. 4. Prerequisite: Anthropology 152 or 153 or equivalent. The development of civilization from the Neolithic Age to the dawn of written history. Offered odd numbered years.

355 (141) ARCHAEOLOGY OF NORTH AMERICA. 1 Q. W. 4. Prerequisite: Anthropology 152 or 153 or equivalent. The origins, backgrounds and development of pre-Columbian North American peoples and cultures. Offered odd numbered years.

361 (145) INDIANS OF NORTH AMERICA. 1 Q. A. 4. Su. 3. Prerequisite: Anthropology 152 or 153 or equivalent. The native cultures of North America, north of the Rio Grande.

362 (144) INDIANS OF SOUTH AMERICA. 1 Q. W. 4. Prerequisite: Anthropology 152 or 153 or equivalent. The cultures of the Indians of South America. Offered even numbered years.

363 (146) PEOPLES OF AFRICA. 1 Q. S. 4. Prerequisite: Anthropology 152 or 153 or equivalent. The aboriginal cultures of Africa. Offered odd numbered years.

364 (147) PEOPLES OF ASIA. 1 Q. S. 4. Prerequisite: Anthropology 152 or 153 or equivalent. The peoples and cultures of Asia including India, China, Japan, Siberia, and the Near East. Offered odd numbered years.

365 (181) INDIANS OF MONTANA. 1 Q. W. Su. 3. Prerequisites: Anthropology 152 or 153 or equivalent. A field course in the study of Indian tribes of Montana and related areas. Total credit allowed: 15.

366 (191) FIELD WORK: NORTHWEST ETHNOLOGY. Any quarter in which field parties are organized. Prerequisite: Anthropology 152 or 153 or equivalent. A field course in the study of Indian tribes of Montana and related areas. Total credit allowed: 15.

367 CULTURE CONFLICT IN COLONIAL AREAS. 1 Q. A. 3. Prerequisite: Anthropology 152 or 153 or equivalent. Sociological changes and social problems that accompany the emergence of peoples from colonial to independent or semi-autonomous status.

ART study is concerned with the acquisition of skills in and knowledge of the use of visual means in the portrayal of the visible world, for the expressions of ideas and feelings, and for the improvement of taste and judgment. Understanding and appreciation of both present and past are important aspects of the study.

Four years are required for the Bachelor of Arts degree. Art courses are offered in design and history as well as drawing, ceramics, crafts, painting, and sculpture. Training also necessarily includes much general education, since an artist must understand as much as possible of man and man's environment to produce effective works of art. Study involves, mainly, learning by doing and practice. Criticism, consultation, and demonstration, are the principal methods of instruction.

Serious students, intent upon doing professional work, usually plan to take at least an additional year of advanced study in preparation for an art career. Many students take some art training to aid them in such professions as advertising or home economics as well as to satisfy personal inclinations or to learn more about our culture. The opportunities for a career in art are surprisingly diversified. Generally speaking, there is commercial and industrial art, where the artist is paid by salary or commission and usually concentrates on some particular phase of this field; art teaching, where there is less technical specialization as a rule; and, for want of a more specific term, the independent artist, whose productions follow his own inclinations and who exhibits his work for sale or in competition. Many artists fall into more than one of these classifications. Graduates of the University are working successfully in all of these groups.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN ART. In addition to the general requirements for graduation listed earlier in the guidebook the following special requirements must be completed. As the Bachelor of Arts degree with a major in Art: 55 or more credits including Art 123, 125-126, 231-232-233, 135, 146, 151, 307, 450. For teaching major or minor 307 is taken instead of 450. A reading knowledge of a classical or modern language is required.

FOR UNDERGRADUATES


127-128 (27ab) CRAFTS. 2 Q. A. W. S. 2. Students may enter either a quarterly or a semester project in the creative use of various materials: (27) wood, fiber, metal; (28) jewelry, enameling.

129 (29ab) CERAMICS. 2 Q. W. S. 2. Ceramic techniques including building, throwing, and glazing as applied to creative work with clay.

133-134 (33ab) PRINTING ARTS. 2 Q. A. W. 2. 2. Prerequisite: 6 credits of Art 123. Students may enter either quarter. Creative experiments in various printing media: (33) Woodcut, serigraphy; (34) lithography.

135 (35) SCULPTURE. 2 Q. W. S. 2. 2. Prerequisite: 6 credits of Art 123. The methods and techniques of sculpture.

139 (39) WATERCOLOR. 1 Q. A. W. S. 2 or 4. Prerequisite: 6 credits of Arts 123. Watercolor techniques and expressive use of subject matter. Still life and landscape.

140 (40) PAINTING. 3 Q. A. W. S. 3, 3, 3. Su. 2 or 4. Prerequisite: 6 credits of Art 123. Methods and techniques of oil painting, with individual criticism directed towards significant expression.
18—BACTERIOLOGY

BACTERIOLOGY is the study of minute organisms—the molds, yeasts, bacteria, rickettsiae, viruses. The field includes industrial bacteriology, medical bacteriology, sanitary bacteriology, dairy bacteriology, and agricultural bacteriology.

The emphasis at Montana State University is toward a general knowledge of microbiology or medical bacteriology. Students who take courses in this field are normally those who intend to specialize in the subject or prepare to enter dental or medical schools (for the latter, see Medical Technology and also Pre—Medicine). In order to obtain a Bachelor of Arts degree in Bacteriology a normal four years is required, the first two years being devoted to the development of a sound foundation in Physics, Chemistry, and Zoology. The Master of Arts (or Master of Science) degree is also offered (see Graduate Studies).

Graduates find positions in hospitals, doctors' offices, research institutions, and industrial laboratories. Many take advanced work for higher degrees which enables them to conduct or direct research in the various governmental, industrial, and educational laboratories.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University the student should have had algebra and geometry. It is also recommended that the high school preparation include advanced algebra and a modern foreign language.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN BACTERIOLOGY. In addition to the general requirements for graduation listed earlier in the guidebook, the following special requirements must be completed for the Bachelor of Arts degree with a major in Bacteriology: 40 or more credits including the following courses: Bacteriology 300, 301, 302, 303, 400, 403, 405; Chemistry 245, 261-262-263, and 384; Physics 111-112-113 or 221-222-223; a reading knowledge of one or two languages (20-25 credits) of a modern foreign language, or French, German, or Spanish are highly recommended and in certain cases may be applied to the major in lieu of certain courses in Bacteriology.

Freshman Year

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<tr>
<td>Chem. 121-122-123—College Chemistry</td>
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<tr>
<td>Zool. 101—General Zoology</td>
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<td>Eng. 104-105—Freshman Composition</td>
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<tr>
<td>H&amp;P 101-102-103—Preclinical Education</td>
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<tr>
<td>ROTC 101-102-103—Military or Air Science</td>
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<td>Group Requirements</td>
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Sophomore Year

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<td>Phys. 111-112-113—General Physics</td>
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<tr>
<td>Chem. 263-264-265—Structure and Function of Cells</td>
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<td>H&amp;P 201-202-203—Physical Education</td>
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<tr>
<td>ROTC 201-202-203—Military or Air Science</td>
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Junior Year

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<tr>
<td>Bact. 300—General Bacteriology</td>
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<tr>
<td>Bact. 301—Immunology</td>
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<tr>
<td>Bact. 302—Medical Microbiology</td>
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<td>Zool. 303—Parasitology</td>
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<td>Chem. 245—Quantitative Analysis</td>
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<td>Bact. 305—Media Preparation</td>
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Senior Year

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<td>Bact. 400—Advanced Bacteriology</td>
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<td>Bact. 402—Microbial Physiology</td>
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<td>Zool. 303—Histology</td>
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<td>Chem. 384—Physiological Chemistry</td>
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200 (19) ELEMENTARY BACTERIOLOGY. 1 Q. A. 3 (3-0). A survey of the field. Recent developments and concepts as they affect the person and the community. (Credit not allowed toward a major in Bacteriology.)

200 (117) GENERAL BACTERIOLOGY. 1 Q. A. 5 (3-0). Prerequisites: Chemistry 263 and Physics 223 or equivalent. Fundamental bacteriology with emphasis on bacterial taxonomy, classification, morphology, physiology: effect of environmental factors on bacteria; microbiology of soil, water, milk and foods; and industrial microbiology.

301 (118) IMMUNOLOGY. 1 Q. W. 5 (3-4). Prerequisite: Bacteriology 300. General principles of immunity and extensive laboratory work in serology, animal experimentation, and clinical diagnosis.

302 (119, 121) MEDICAL MICROBIOLOGY. 1 Q. A. 5 (3-4). Prerequisite: Bacteriology 301. Pathogenic microorganisms, including bacteria, fungi, viruses, and rickettsia. The didactic work includes properties of pathogens and their relation to disease, symptomatology, epidemiology, and chemotherapy. Laboratory work emphasizes the standard diagnostic procedures used in hospitals and public health laboratories.


400 (131) ADVANCED BACTERIOLOGY. 1 Q. W. 3-5 (3-4). Prerequisite: Bacteriology 304. Senior standing in Bacteriology, or consent of instructor.

401 (191) ADVANCED IMMUNOLOGY. 1 Q. On demand. 3 (3-0). Prerequisite: Bacteriology 302. Advanced theories of immunity and recent immunological techniques.

402 (125) HEMATOLOGY. 1 Q. A. 2 (1-2). Prerequisite: Bacteriology 302. Blood and clinical hematological methods.

403 (193) MICROBIAL PHYSIOLOGY. 1 Q. W. 3-5 (3-4). Prerequisite: Chemistry 384 or an equivalent course in Biochemistry. Physiology of bacteria and related microorganisms, the metabolism of microbes, and a study of enzymes of bacteria.

494 MICROBIAL GENETICS. 1 Q. S. 2-0. Given odd numbered years. Prerequisites: senior standing in one of the biological sciences and consent of instructor. Mutation, adaptation and genetic recombination in bacteria and other microbes.

495 (190) SEMINAR. 3 Q. A. W. S. 2, 2, 2 (3-0). Recent literature in science, Bacteriology, immunology, parasitology, and public health.

500 ADVANCED TOPICS IN MICROBIOLOGY. 1 Q. On demand. 2 (2-0). Critical analysis of research papers in certain areas of microbiology and presentation of this material. Occasionally, a graduate student will be asked to present experimental data from his own research.

600 (200) RESEARCH. Any Q. Credit variable. Original investigations on a microbiology problem under the guidance of a staff member. Total credit allowed: 15.

690 (259) THESIS. Any quarter. Credit variable. Total credit allowed: 8.
**BIOLOGICAL SCIENCES** deal with living things. The several specific sciences are Botany, Zoology, or the study of plant-like organisms, which are both beneficial and harmful to man; Botany or the study of plants, and Zoology or the study of animals. Thus the structure, function, and interrelations of all living organisms are stressed in these studies.

Four years are required for the degree of Bachelor of Arts. Course work includes the elements in the first year, and more advanced work in Plant Physiology, Human Physiology, and the Conservation of Natural and Human Resources.

This program provides an extensive training in the Biological Sciences. It is designed for the student interested in teaching Biology in high schools as well as for the student who wishes a general education with emphasis on the plant and animal world. This curriculum is recommended for students interested in the more general aspects of the Biological Sciences rather than for those who wish to make a specialized or intensive study of any one of them.

**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 a foreign language.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN BIOLOGICAL SCIENCES.** The requirements in this field are such as to enable the student to qualify for advanced study in either botany or zoology. In addition to the general requirements for graduation listed earlier in the guidebook, the following special requirements must be completed for the Bachelor of Arts degree with a major in Biological Sciences including Botany including Botany 121-122 (General Botany), Botany 123 (Spring Flora) or Botany 124 (Summer Flora), Botany 225 (Plant Physiology), Botany 329 (Mycology), Botany 355 (Botany 104-105 Elementary Zoology), Zoology 106 (Field Zoology), Zoology 107 (Comparative Zoology), Zoology 201 (Elementary Botany), Botany 200 (Bacteriology), General 500 (Conservation of Natural and Human Resources).

300 (Conservation of Natural and Human Resources).

Also required are Zoology 104-105, 106 and Chemistry 101-102-103 or 121-122.

Courses 124, 250, 341, 355, 365, 366 and 370 may require field trips, requiring some paying of transportation and insurance costs for such trips. All majors and graduate students are expected to attend a seminar with the staff once a month for the discussion of Botany, its history and problems. Field trips will be taken.

**FOR UNDERGRADUATES**

100 (S15) FIELD BOTANY. 1 Q. Su. Given only at Biological Station. 3 (0-15). The collection, preservation, and identification of plant and animal life. 111-112 FELLOWSHIP. 2 Q. A. W. 5, 5. (3-4). 111 An introduction to the anatomy and physiology of the higher plants, including the study of vascular plants. 112 The study of plant groups with particular emphasis upon the use of a manual for the identification of the flowering plants of the local area. 114 (S61) SUMMER FLORA. 1 Q. Su. 4 (2-6). 3 cr. at Biological Station. A laboratory and field course in the use of a manual for the identification of the flowering plants. Methods of collecting, pressing, and mounting plants.

123 (13) SPRING FLORA. 1 Q. S. 3 (0-6). Prerequisite: Botany 111 or 121-122. A field course in the use of a manual for the identification of the flowering plants. Methods of collecting, pressing, and mounting plants.


250 (27) ELEMENTS OF PLANT ECOLOGY. 1 Q. S. 3 (2-4). Prerequisite: Botany 112 or 121-122. An introduction to ecological principles, including interrelationship of environmental factors, primary and secondary succession, plant indicators and vegetation units.

284 (126) EVOLUTION. 1 Q. W. 3 (3-4). Prerequisite: Botany 121-122, Botany 101-102 and Zoology 101-102 and 106. The theories of evolution, tracing of the possible stages in the evolution and development of the vegetative and reproductive structures of plants.

344 (S51) PROBLEMS IN MYCOLOGY AND PHYTOPATHOLOGY. 1 Q. W. S. 5 (3-6). Problems in Mycology and Phytopathology. 3 cr. at Biological Station. A laboratory and field course in the use of a manual for the identification of the flowering plants. Methods of collecting, pressing, and mounting plants.

349 (170, I) PROBLEMS IN PLANT PHYSIOLOGY. 1 Q. Any quarter. 2-6 (0-3 cr.). Prerequisites: Botany 250 and consent of instructor. Individual or group work (consisting of research problems, special readings, discussions, etc.) dealing with aspects of plant physiology not taken up in regular courses. Total credit allowed: 6.

359 (170, II) PROBLEMS IN PLANT ANATOMY AND CYTOLOGY. 1 Q. Any quarter. 2-6 (0-3 cr.). Prerequisites: Botany 342 or 344 and consent of instructor. Individual or group work (consisting of research problems, special readings, discussions, etc.) dealing with aspects of plant anatomy and cytology not taken up in regular courses. Total credit allowed: 6.

369 (170, III) PROBLEMS IN PLANT ANATOMY AND CYTOLOGY. 1 Q. Any quarter. 2-6 (0-3 cr.). Prerequisites: Botany 341 or 342 and consent of instructor. Individual or group work (consisting of research problems, special readings, discussions, etc.) dealing with aspects of plant morphology not taken up in regular courses. Total credit allowed: 6.

389 (170, IV) PROBLEMS IN TAXONOMY. 1 Q. Any quarter. 2-6 (0-3 cr.). Prerequisites: Botany 355 and consent of instructor. Individual or group work (consisting of research problems, special readings, discussions, etc.) dealing with aspects of plant taxonomy not taken up in regular courses. Total credit allowed: 6.

399 (170, V) PROBLEMS IN MYCOCOLOGY AND PHYTOPATHOLOGY. 1 Q. Any quarter. 2-6 (0-3 cr.). Prerequisites: Botany 341 or 370 or 376 and consent of instructor. Individual or group work, consisting of research problems, special readings, discussions, etc.) dealing with aspects of mycology and plant pathology not taken up in regular courses. Total credit allowed: 6.
BUSINESS ADMINISTRATION is the study of the theory and practice of the world of business. Students may take a general course; or they may specialize in accounting, finance, marketing, secretarial work and business teacher training. The individual course in production, management, and marketing is offered in Law and Business Administration; the normal six-year program may be turned to production and personnel work. Women graduates may find positions in business management, or in the field of business teaching. The field of specialization mentioned above indicate general commercial pursuits which graduates may take. They may secure positions in banks, investment houses, sales, finance companies, insurance and credit agencies and wholesale and retail establishments. Many graduates have turned to production and personnel work, or have found positions in the field of business teaching. The field of specialization mentioned above indicate general commercial pursuits which graduates may take. They may secure positions in banks, investment houses, sales, finance companies, insurance and credit agencies and wholesale and retail establishments. Many graduates have turned to production and personnel work, or have found positions in the field of business teaching.
### Other Than Business Administration

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics 201-202-203—Principles of Economics</td>
<td>9</td>
</tr>
<tr>
<td>Economics 204—Money and Banking</td>
<td>4</td>
</tr>
<tr>
<td>Public Finance or Labor Economics</td>
<td>2</td>
</tr>
<tr>
<td>Foreign Languages</td>
<td>17</td>
</tr>
</tbody>
</table>

- Twenty-three credit hours or a demonstrated reading knowledge.

### BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

To achieve the degree of Bachelor of Science in Business Administration, the student must have (a) a total of 120 credits (plus 4 credits in Health and Physical Education); (b) successfully complete the general University and Pre-Business requirements; (c) not less than 60 credits (includes Health and Physical Education) of work taken in schools and departments other than the School of Business Administration; and (d) complete core courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 180—Elementary Typewriting (or have a typing proficiency of 25 words per minute)</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 201-202—Elementary Accounting</td>
<td>10</td>
</tr>
<tr>
<td>Bus. Ad. 230—Financial Organization</td>
<td>4</td>
</tr>
<tr>
<td>or Econ. 301—Money and Banking</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 300—Principles of Insurance</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 340—Industrial Organization and Management</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 360—Marketing Principles</td>
<td>5</td>
</tr>
<tr>
<td>Bus. Ad. 446—Administration and Business Policies</td>
<td>4</td>
</tr>
</tbody>
</table>

### AREAS OF CONCENTRATION

In addition, a student must select one of the following areas: Accounting; Banking and Finance; Industrial Organization and Management; Marketing; General Business; Combination Business and Law; Secretarial; Business Teaching. The course work required in each of these areas of concentration is listed under each curricula. Deviations from the prescribed program must have the approval of the adviser in the School of Business Administration.

#### ACCOUNTING

A minimum of 12 credits chosen from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 301—Advanced Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 305—Municipal Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 405—Accounting Systems</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 406—Managerial Accounting</td>
<td>4</td>
</tr>
</tbody>
</table>

(b) Those students preparing for the public accounting profession are required to take the following courses in addition to the basic requirements of the School of Business Administration:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 205—Intermediate Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 302—Advanced Accounting</td>
<td>8</td>
</tr>
<tr>
<td>Bus. Ad. 303-304—Cost Accounting</td>
<td>6</td>
</tr>
<tr>
<td>Bus. Ad. 401—Income Tax</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 403-404—Auditing</td>
<td>8</td>
</tr>
<tr>
<td>Bus. Ad. 322—Business Finance</td>
<td>5</td>
</tr>
</tbody>
</table>

### BANKING AND FINANCE

Adviser, Chambers

This program is designed to give a major in this area a broad understanding of the role of finance in our economy including private and public financial institutions, money, credit, and security markets and some of the technical training necessary for managerial positions in financial work in large and small scale businesses.

Requirements for a major in Banking and Finance should include:

1. Bus. Ad. 205—Administrative Accounting                                | 4       |
3. Bus. Ad. 323—Commercial Banking                                       | 4       |

### MANAGEMENT

(Production, Personnel and Statistics)

#### Option A. Industrial Organization and Management (Production)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 205—Administrative Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 330, 340, 350, 360, plus 13 additional credits as electives</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Option B. Personnel Management and Human Relations

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 265—Administrative Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 441—Personnel Management</td>
<td>8</td>
</tr>
<tr>
<td>Bus. Ad. 444—Regulation of Industry</td>
<td>4</td>
</tr>
<tr>
<td>Psych. 351—Psychological Testing</td>
<td>6</td>
</tr>
<tr>
<td>Econ. 321—322—Labor Economics</td>
<td>6</td>
</tr>
</tbody>
</table>

#### Option C. Managerial Analysis and Control

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 441—Personnel Management</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 303-304—Cost Accounting</td>
<td>6</td>
</tr>
<tr>
<td>Bus. Ad. 341—Industrial Purchasing and Traffic Management</td>
<td>4</td>
</tr>
<tr>
<td>Math. 302-303—Statistical Methods</td>
<td>6</td>
</tr>
</tbody>
</table>

### GENERAL BUSINESS

Advisers, Helbing, Peters, Harris

This curriculum has been designed for students desiring a broad rather than a specialized field of business training.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 205—Administrative Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 322—Business Finance</td>
<td>5</td>
</tr>
<tr>
<td>Bus. Ad. 347—Managerial Economics</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 359—Business Law</td>
<td>3</td>
</tr>
<tr>
<td>Math. 302—303—Statistical Methods</td>
<td>6</td>
</tr>
</tbody>
</table>

### COMBINED COURSE IN BUSINESS ADMINISTRATION AND LAW

Adviser, T. H. Smith

The university offers a combined curriculum which leads to the degree of Bachelor of Science in Business Administration at the end of four academic years and the degree of Bachelor of Laws at the end of six academic years. In this program a student must satisfy fully the University and School of Business Administration curriculum requirements and, during his junior year in the School of Business Administration, must complete Bus. Ad. 320 or Econ. 301, Bus. Ad. 320, 340, 350, 359, plus 13 additional credits as electives within the School of Business Administration (other than Bus. Ad. 357-358-359).

Students planning to work toward a Certified Public Accounting Certificate as well as the LL.B. Degree, and who hope to complete this in six years, should take Elementary Accounting their first year and should plan to take at least ten quarters of pre-law (this involves one summer session) so that they are able to take the accounting courses which are preparatory for the Certified Public Accounting examinations.

Upon completion of the foregoing program with at least a 2.0 index of grade points earned in courses undertaken, the student may be admitted to the School of Law. If so admitted, the student...
will receive the degree of Bachelor of Science in Business Administration at the end of the first academic year in the School of Law. Provided the student is certified as having completed the work of the first year of law to the satisfaction of the School of Law.

MARKETING
Advisers, Line and Wright

The curriculum in marketing is designed to prepare students in retailing, wholesaling, advertising, sales and sales administration, and market research.

20 credit hours in the area of marketing, including the following courses for faculty members and the School of Education.

Bus. Ad. 384—Gregg Shorthand Theory for Teachers

Making studies which are useful and will be of particular interest to those in the commerce field.

Examination admitting him to the School of Business and the highest possible living standards; (2) by presenting in the most effective use of resources of the state.

Thus, the following Secretarial Science courses.

Bus. Ad. 184-185-186—Stenography

Bus. Ad. 187-188—Advanced Stenography

Bus. Ad. 183—Advanced Typewriting

Bus. Ad. 184-185-186—Stenography

Bus. Ad. 205—Administrative Accounting

Bus. Ad. 206—Industrial and Commercial Marketing

Bus. Ad. 382—Advanced Secretarial Practice

Bus. Ad. 193—Beginning Secretarial Practice

Bus. Ad. 192—Office Machine Practice

Econ. 235—The Location of Economic Activity

English 204—Letter and Report Writing

Speech 316—Business and Professional Speaking

SECRETARIAL SCIENCE
Advisers, Martinson and Swanson

Candidates for the degree of Bachelor of Science in Business Administration concentrating in Secretarial Science are required to take the following courses in addition to the core courses in Business Administration.

Bus. Ad. 185—Advanced Typewriting

Bus. Ad. 184-185-186—Stenography

Bus. Ad. 190-191—Advanced Shorthand Transcription

Bus. Ad. 192—Office Machine Practice

Bus. Ad. 193—Beginning Secretarial Practice

Bus. Ad. 194—Records Management

Bus. Ad. 384—Gregg Shorthand Theory for Teachers

Bus. Ad. 380—Methods of Teaching Shorthand, Typewriting and Transcription

Bus. Ad. 381—Methods of Teaching Bookkeeping and Basic Business

BUSINESS TEACHING MAJORS
Adviser, Wilson

A student planning to prepare for high school teaching may secure his or her degree from the School of Business Administration or the School of Education.

To secure the degree of Bachelor of Science in Business Administration with a major in business, a student must meet the requirements of the School of Business Administration and include the following Secretarial Science courses:

Bus. Ad. 183—Advanced Typewriting

Bus. Ad. 184-185-186—Stenography

Bus. Ad. 190-191—Advanced Shorthand Transcription

Bus. Ad. 192—Office Machine Practice

Bus. Ad. 193—Beginning Secretarial Practice

Bus. Ad. 194—Records Management

Bus. Ad. 384—Gregg Shorthand Theory for Teachers

Bus. Ad. 380—Methods of Teaching Shorthand, Typewriting and Transcription

Bus. Ad. 381—Methods of Teaching Bookkeeping and Basic Business

BUREAU OF BUSINESS AND ECONOMIC RESEARCH

The Bureau of Business and Economic Research was established as an integral part of the School of Business Administration to extend its services to the people of Montana (1) through research which will contribute to the most effective use of resources of Montana and the highest possible living standards; (2) by presenting analyses of current business conditions and developments, and by making studies which are useful and will be of particular interest to those in the commerce field; (3) by providing opportunities for assistance for research, and (4) by the development of the social sciences in the state.

ACCOUNTING
For Undergraduates

201-202 (11ab) ELEMENTARY ACCOUNTING. 2 Q. A. W. S. Su.

5. 5. A student may be exempt from 201 upon passing a placement examination admitting him to 202. The basic principles underlying accounting procedures; including the techniques of recording simple business transactions; the use of the balance sheet for valuation as applied to the balance sheet, and income determination. Application of the above principles are developed as they apply to individual proprietorships, partnerships, and corporations.

203-204 (12ab) INTERMEDIATE ACCOUNTING. 2 Q. A. W. S. Su.

4. 4. Requisites: Bus. Ad. 201-202. Financial statement presentation and analysis. Basic principles of valuation as applied to the balance sheet, and income determination. Application of the above principles to the operating statement. Special consideration is given to problems involving the application of the above theories.

205 (14) ADMINISTRATIVE ACCOUNTING. 1 Q. A. S. 4. Requisites: Bus. Ad. 201-202. Co-requisite majors. Designed to give students majoring in finance, marketing management, or general business an understanding of the significance of accounting information and its significance in managerial decision-making. This course is designed to give the student a broad background in accounting principles and interpretation of financial statements, internal control and its significant aspects, budgeting, costing of products, and sales, assets, and accounting reports to administrative control. Credit not allowed for this course and 200-204.

200-202 (11ab) ADVANCED ACCOUNTING. 2 Q. A. W. S. Su.

4. 4. Requisites: Bus. Ad. 204. Problems of partnerships, installment sales, consignments, branch accounting, receivership accounting, and the contribution to the accounting and financial aspects of promotion and organization; financial policies with respect to the instruments of long term funds; the working
capital position; the administration of income; causes of failure; methods of reorganization. The impact of external financial forces upon the firm. The impact of external financial forces upon the firm. The impact of external financial forces upon the firm.

323 (135) COMMERCIAL BANKING. 1 Q. W. 4. Prerequisite: Bus. Ad. 330 or 321. The principles of organization, structure, management, and operation of commercial banks. The role of banks in the economy as depository institutions, credit intermediaries, and regulators of the money supply. The impact of monetary policy on the banking system and the economy. The role of banks in the financial system and the economy. The role of banks in the financial system and the economy.

324 (131) REAL ESTATE. 1 Q. S. 4. Prerequisite: Econ. 203. Factors that affect value of real estate in markets, little and real estate transfers.

329 (138) PERSONAL INVESTMENTS. 1 Q. S. 2. Savings accounts, purchasing a home, purchasing insurance, securities (stocks and bonds), investment trusts, basic facts with which a layman should be acquainted.

330 (123) PRINCIPLES OF INSURANCE. 1 Q. A. W. S. 3. Prerequisite: Bus. Ad. 320. The principles and practices of sound life insurance covering forms and kinds of policies, rate making, settlement options, reserves and surplus, and government regulation.


420 (154) INVESTMENTS. 1 Q. S. 4. Prerequisite: Bus. Ad. 320 or 330. Investment principles and their application in formulating investment policies for institutional and individual investors. Particular emphasis is placed upon current analytical techniques used in determining the value of securities and upon background discussion of the mechanics of investment and the operation of security exchanges is also provided.

421 (191) BANKING AND FINANCE SEMINAR. 1 Q. Any quarter. 2.

The following courses in the Economics department are suggested as electives for the major in Banking and Finance: Econ 304, 305, 365, and 406.

FOR GRADUATES

520 (211) THEORY AND MANAGEMENT OF CENTRAL BANKING. 1 Q. A. 3. The functions and operation of central banking in the contemporary economy. Analysis of central bank operations on conditions in the money market and on the general level of business activity.

521 (222) PROBLEMS OF CORPORATE FINANCIAL MANAGEMENT. 1 Q. W. 3. Prerequisite: Bus. Ad. 322. Problems associated with corporate financial decisions. The nature of securities and money markets and their relationship to corporate decision making. The relationships between financial operations and conditions in the money market and on the general level of business activity. The use of economic analysis in formulating business policies and making managerial decisions. The role of profits, business fluctuations, problems of competition and monopoly, costs, markets, and policies relating to labor, consumers and government. Required of all graduate students.


BUSINESS LAW FOR UNDERGRADUATES

387-389-390 (14abc) BUSINESS LAW. 3 Q. A, W, S. 3. (387) Introduction, contracts, agency; (389) corporate and partnership law; (390) personal property, including sales, bailments, credit transactions; real property, including leases, easements, and mortgage. (387) Accounting majors—corporations and negotiable instruments; Sections 2 and 3. The Bus. Ad. student—corporations including trade regulations and labor law. Pre-law students are not eligible to take this course.

MANAGEMENT FOR UNDERGRADUATES

540 (122) INDUSTRIAL ORGANIZATION AND MANAGEMENT. 1 Q. A, W, S. 5. Prerequisite: Bus. Ad. 320. The principles of management as applied to the organization and operation of manufacturing and merchandising enterprises. Application of the principles of management to problems as: elements of organization; plant location and layout; materials procurement and handling; production planning and control; accounting methods in administration; salary administration and other employee relations aspects of supervision and management.


344 (180) AMERICAN INDUSTRIES. 1 Q. W. 4. Prerequisite: Bus. Ad. 360. Economic problems and technological processes of selected industries and international competition. Location factors, company structures, mergers and competition and national policy related to oligopoly, price fixing, and multi-line production and marketing problems.

346 (181) ADMINISTRATION AND BUSINESS POLICIES. 1 Q. A. W. S. 3. Required of all seniors in the School of Business Administration as preparation for security analysis work with financial organizations.

441-442 (18ab) PERSONNEL MANAGEMENT. 3 Q. A. W. S. 4. (441) The personnel function of management with emphasis on the human relations aspect of personnel management. Supervisory relations, method of supervising employees, the performance of job duties, job evaluation, social controls, union-management relations, health and safety, personnel research and evaluation. (442) Analysis of personal problems and solving problems, cases and critical incidents in selected areas of manpower management. Analysis in depth of such areas as: Job Evaluation; Industrial Training and Supervisory Development; Executive Appraisals; Safety Engineering and Workmen's Compensation and Labor and Employment Relations.

444 (182) REGULATION OF INDUSTRY. 1 Q. S. 4. Prerequisite: Bus. Ad. 340 and 360. Government relationships and industrial activity, including efforts to maintain competition; meeting the problem of economic concentration and combination; regulatory practices and private practice for controlling various phases of economic life; and the action of the courts concerning business combinations.

FOR GRADUATES

338 (109) ECONOMICS OF CONSUMPTION. (See Economics).

369 (151) MARKETING PRINCIPLES. 1 Q. A. W. S. 5. Prerequisite: Econ. 203. The prevailing methods of marketing as they apply to consumer goods, producer goods and raw materials. Marketing-elasticity, marketing functions, merchandising, price policies, and government regulations.

361 (151) INDUSTRIAL AND COMMODITY MARKETING. 1 Q. A. W. S. 5. Prerequisite: Econ. 203. Marketing of raw materials, equipment, parts, and supplies. Emphasis on marketing of commodity products and industrial goods; special considerations of offshore marketing of raw materials, equipment and supplies; emphasis on marketing of raw materials, equipment, parts and supplies.

363 (159) RETAILING PRINCIPLES. 1 Q. A. W. S. 5. Prerequisite: Econ. 203. The basic principles of retailing as they apply to consumer goods, producer goods and raw materials. Marketing-elasticity, marketing functions, merchandising, price policies, and government regulations.

364 (158) SALES AND SALES ADMINISTRATION. 1 Q. W. S. 5. Prerequisite: Bus. Ad. 360. Selling techniques and strategy, including practice in personal selling; investigation by case studies of major problems facing the sales executive, including product planning, market analysis and sales potentials, sales organization and promotion, and the recruitment, hiring, training, supervision, evaluation, and control of sales personnel.
24—CHEMISTRY


562 (235) MARKET RESEARCH, MARKET ANALYSIS AND SALES PLANNING. 1 Q. W. 3. Prerequisite: Bus. Ad. 466. Specific course of study in various types of problems encountered in marketing, general and local market analysis, and sales planning. Prerequisite: 183. 1 Q. S. 3. A critical review of marketing—its techniques, functions, systems, cost of marketing ser­ vices, methods of price fixing, and advertising. Prerequisite: 183.


SECRETARIAL AND BUSINESS TEACHER TRAINING

Not more than 19 credits earned in Business Administration 180-181-182, 183-184-185, and 186-187 may be applied toward graduation by students majoring in Business Administration, Business and Business Education, or earning a teaching major or minor in Business Administration: Business Administration 180-181-182 (238abc) ELEMENTARY TYPOWRITING. 3 Q. A. W. S. 2. 2. Prerequisite: (180) none; (181) 180 or 15 words a minute in a 5-minute test; (182) 181 or 25 words a minute in a 10-minute test. Keyboard drills, composition, direct dictation. Application of basic skills. Students who present one entrance unit of typewriting may not receive credit in 180; with two units, no credit in 181.

183 (21) ADVANCED TYPOWRITING. 1 Q. A. W. S. 2. Prerequisite: Bus. Ad. 183. 50 words a minute in 10-minute test. Speed and control drills, composition, and timed production typing.

184-185-186 (22abc) STENOGRAPHY. 3 Q. A. W. S. 5. 5. Combined shorthand and transcription practice: theory and dictation. Students who present one entrance unit of stenography may not receive credit in 184; with two units, no credit in 185.

187-189-190 (23abc) ADVANCED STENOGRAPHY. 3 Q. A. W. S. 5. 5. Combined shorthand and transcription practice: theory and dictation. Students who present one entrance unit of stenography may not receive credit in 184; with two units, no credit in 185.


193 (26) BEGINNING SECRETARIAL PRACTICE. 1 Q. A. W. S. 2. Prerequisite: 183. Duplicating, dictating, and transcribing machines.


195 (30) ADVANCED TYPEWRITING. 1 Q. Su. only. 1. Prerequisite: minimum typing speed of 45 net words a minute or Bus. Ad. 183. Transcription at approximately two words of the straight copy typing speed or about 35 words a minute with a margin letter size.

196 (28) METHODS OF TEACHING BOOKKEEPING AND BASIC BUSINESS. 1 Q. A. 2. Prerequisite: Bus. Ad. 202 or teaching experience in business subjects, or consent of instructor. Methods and techniques of teaching bookkeeping and basic business subjects. Prerequisite: 183. 1 Q. S. 1. Advanced techniques of teaching bookkeeping and basic business subjects. Prerequisite: 183.

197 (132) METHODS OF TEACHING MATH AND BASIC BUSINESS. 1 Q. A. 2. Prerequisite: Bus. Ad. 202 or teaching experience in business subjects, or consent of instructor. Methods and techniques of teaching bookkeeping and basic business subjects. Prerequisite: 183.
eng. 104-105—Freshman Composition .......................... 5
Chem. 121-122-123—College Chemistry ...................... 5, 5, 5
Math. 251, 252, 253—Sophomore Mathematics .............. 5, 5, 5
F. L. 101-102-103—Elementary German ..................... 5, 5, 5
Chemistry 354—Inorganic Chemistry ......................... 3
F. L. 215—Advanced German .................................. 4
Chem. 344 Advanced Quantitative Analysis .................. 3
Electives, Group II or III ...................................... 4, 4, 5
Electives .................................................................... 6

FOR UNDERGRADUATES

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

DANCE—25

371-372 (106ab) PHYSICAL CHEMISTRY. 2 Q. A, W, S. 5, 5
(5-4). Prerequisites: Chemistry 345, 243, Physics 222 and Mathematics 252. The prerequisite of Chemistry 243 may be waived by the instructor for students majoring in other departments. The more important methods, results and problems of theoretical chemistry.

364 (103) PHYSIOLOGICAL CHEMISTRY. 1 Q. S. 5 (4-6).
Prerequisite: Chemistry 260 or 263. Chemistry and metabolism of proteins, lipids and carbohydrates; respiration; colloids.

362 (130) THEORETICAL ORGANIC CHEMISTRY. 1 Q. S. Su.
8, 8, 4 (2-4-6). Prerequisite: Chemistry 261. Special topics in advanced organic chemistry.

DANCE offers training in the traditional techniques of the classic ballet. It teaches the student appreciation of this art through lecture, instruction, and participating performance. Students in Ballet Theater perform throughout the year in scheduled University productions. No major is given in dance.

FOR UNDERGRADUATES AND GRADUATES

344 ADVANCED QUANTITATIVE ANALYSIS. 1 Q. A. 3
(2-6). Prerequisite: Chemistry 243. The methods of quantitative analysis of mixtures and complex materials.

345 (111) TECHNICAL ANALYSIS. 1 Q. A. 2 (0-6).
Prerequisite: Chemistry 245. Quantitative analysis of materials of commercial importance.

346 (111) INSTRUMENTAL ANALYSIS. 1 Q. W. S. Su. 2
(1-4). Prerequisite: Chemistry 245. Modern instrumental methods of analysis.

347 (111) MICROCHEMICAL ANALYSIS. 1 Q. S. 2 (1-4).
Prerequisite: Chemistry 245. The use of microchemical techniques in chemical analysis.

348 (15) ADVANCED QUANTITATIVE ANALYSIS. 1 Q. A. 3
(2-4). Prerequisite: Chemistry 243. The use of modern techniques and methods of qualitative analysis.

354 (150) INORGANIC CHEMISTRY. 1 Q. W. 3 (3-0).
Prerequisites: Chemistry 123 and 125, or consent of instructor. The principles of systematic inorganic chemistry. Special topics in inorganic chemistry.

370 (40) SURVEY OF PHYSICAL CHEMISTRY. 1 Q. S. 5
(5-4). Prerequisites: Chemistry 103 or 125 and 17 credits of college physics. Those portions of physical chemistry which are of special interest to prospective students of medicine.
DRAMA study is designed to train the student in acting, directing, design, and the technical phases of dramatic production and to give him experience in these areas; to provide for the direct observation of high school theater; to prepare him for graduate work in theater; and to relate through the study of the art of the theater that which is common to the societies of the past and the present.

Montana State University graduates in theater and drama are presently teaching in high school theater, college theater, enrolled in graduate schools in other universities, and working in community theater, radio, and the motion picture.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN DRAMA.** In addition to the general requirements listed, the following are the requirements that must be completed for the Bachelor of Arts degree with a major in Drama. Drama 201, 212, 223, 231, 251, 341-342-343 (2 q.tr.), 351-352-353, 351 or 301, 401-402-403 (4 cr.), plus a minimum of 9 additional credits in the drama department.

The following courses outside the drama department are required. Speech 116 and 261, English 342 or 343, and a reading knowledge of the literature of some foreign language, classical or modern.

Speech 241 radio-television speech may be counted as part of drama requirement.

Senior comprehensive examinations are required only for honors candidates.

Seniors must submit for graduation an original play, or a prompt book for the production of a full-length play and also must direct a one-act play.

**FOR UNDERGRADUATES**

101 (20) REHEARSAL AND PERFORMANCE. 3 Q. A. W. S. 1, 1, 1. Students may enter any quarter. Prerequisite: consent of instructor. Students engaged in any aspect of production including acting, directing, writing, lighting, costume design, business and publicity, etc. are eligible for registration. Total credit allowed: 6.

NOTE: 3 credits of Drama 101 may be applied to the Drama major.

201 (35) INTRODUCTION TO THE THEATER. 1 Q. A. 3. A survey course covering the elements which make up the art of play production. Consideration of the production of both classical and modern plays. Prerequisites: consent of instructor.

212 (40) ELEMENTARY ACTING. 1 Q. W. S. Principles of pantomime and characterization with attention to expressive bodily action. Prerequisites: voice exercises for vocal flexibility, range, articulation, and enunciation.

223 (41) ELEMENTARY DIRECTION. 1 Q. S. 3. Prerequisite: Drama 201. Theories and techniques of stage direction and rehearsal. The production of the one-act play form will be considered and used in this course.

231 (50) ELEMENTARY STAGECRAFT. 1 Q. A. 2. Principles of and practice in the construction of stage scenery. Students will work on the construction of a set for a one-act play each quarter. Prerequisites: consent of instructor.

241 (52) STAGE LIGHTING. 1 Q. S. 3. Prerequisite: Drama 231. Principles and practice in stage lighting. Theatrical lighting equipment and instruments and their employment in stage settings. Prerequisites: consent of instructor.

251 (75) STAGE MAKEUP. 1 Q. A. 2. Prerequisite: Drama 201 or considerable previous experience and consent of instructor. Principles and practice in theatrical makeup. Students will work on makeup for major productions.

**FOR UNDERGRADUATES AND GRADUATES**

225 (125) ADVANCED STAGECRAFT. 1 Q. W. 3. Prerequisite: Drama 231. Types of stage scenery. Principles of and practice in scenic painting. Advanced problems in scenic construction and painting. Students will head construction and painting crews for major productions.

242-243-244 (177) THE DRAMA. (see English).


312 (19a) THEATER IN THE COMMUNITY. 1 Q. S. 2. Prerequisite: consent of the instructor. Consideration of the place in society of the children's theater, the high school theater and the community and little theater. Recommended for teachers. Even numbered years.

341 (125) STAGE COSTUMING. 1 Q. A. 2. Prerequisite: Drama 231. Procedures in creating costumes. Application of the principles of voice, bodily action, pantomime, characterization.

351 (140) ADVANCED ACTING. 1 Q. A. 3. Prerequisite: Drama 212. Study and practice in creating character. Application of the principles of voice, bodily action, pantomime, characterization.

351 (157) CREATIVE DRAMATICS FOR CHILDREN. 1 Q. A. 2. 1, 3, 3. Comprehensive experience and structure of the theater. History of costumes of various periods. Principles of adaptation of the period style to an unadapted play. Students will work on costumes for major productions.

351 (165) THEATER FOR CHILDREN. 1 Q. Su. only. 2 or 4. Prerequisite: consent of instructor. History and objectives of theater for the child audience; survey of existing professional and community children's theater programs; techniques of acting, directing, and producing plays for children to be shown before child audiences in the community.

394 (180) WORKSHOP IN THEATER. 1 Q. Su. only. 2-10. Prerequisite: previous experience in directing and consent of instructor. Group presentations by students of plays not considered by previous courses. (20 credits)

491-492-493 (190) THEATER PROJECTS. 3 Q. A. W. S. 2-4 each quarter. Prerequisite: credits in Drama courses or in English 241-242-243 and 341-342-343, or A. 2 in Drama and the consent of the instructor. Focus of the students: costume, makeup, lighting, stagecraft, backstage organization, stage design, acting, directing, rehearsal and performance, business, and house organization and management.

422 (155) ADVANCED DIRECTION. 1 Q. W. 3. Prerequisite: Drama 223 or 251. Principles of producing a full-length play. Principles of producing farce, fantasy, comedy, melodrama, tragedy. Prerequisites: consent of chairperson. Study and experience in the arts of the theater according to the needs; preparation, and design of the students: costume, makeup, lighting, stagecraft, backstage organization, stage design, acting, directing, rehearsal and performance, business, and house organization and management.

ECONOMICS is that branch of the social sciences which deals with men's efforts to satisfy his wants by utilizing the scarce means provided by nature to achieve that end. The department considers its teaching goals to be threefold: (1) To present to students from all parts of the University the basic theoretical tools of economic analysis, plus relevant facts and institutional arrangements which will assist them as civic leaders in evaluating economic developments and government economic policies. (2) To introduce students majoring in economics to the various specialized departments 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 public spirit, and ability to apply economic knowledge in solving social problems. (3) To help meet, through graduate work, the increasing demands for highly competent professional economists in teaching, industry, commerce, and government.

Four years of college work are required for the degree of Bachelor of Arts. Further study leads to the Master of Arts degree (see Graduate Studies). Courses cover general economic theory, public finance and taxation, labor economics, monetary theory and prices, international economics, public utilities, comparative economic systems, and the economics of Montana.

Graduates take positions in industry, government and education. Some concentrate on labor economics and undertake industrial or personnel work in industry and other fields. Some emphasize international economics, public utilities, and private finance, and utility economics. Some plan to go on with graduate work in other universities for their doctor's degrees and become qualified for teaching in college or university or doing specialized work in government or industry.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN ECONOMICS.** In addition to the general requirements for graduation listed earlier in the guidebook the following special requirements must be completed for the Bachelor of Arts degree with a major in Economics. The junior year requirements are as follows: (1) To present to students from all parts of the University the basic theoretical tools of economic analysis, plus relevant facts and institutional arrangements which will assist them as civic leaders in evaluating economic developments and government economic policies. (2) To introduce students majoring in economics to the various specialized departments 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 public spirit, and ability to apply economic knowledge in solving social problems. (3) To help meet, through graduate work, the increasing demands for highly competent professional economists in teaching, industry, commerce, and government.

**FOR UNDERGRADUATES AND GRADUATES**

Economics 101, 201, 202, 205 and 303 or Mathematics 125; Political Science 202 and 203; two quarters of History 251-252-253; Anthropology 102, or Sociology 101. In the junior or senior year Economics 301, 304, 311, 315, 321, 322, and 331. The following may be counted toward a major in Economics: History 333 and 374, Political Science 365, Mathematics 222, Languages 121, and 125, and the following: Mathematics 125; Economics 310, 320, 330, 340, 350, 360, and 370; Political Science 360, 367, 370, and 371; Sociology 121, 122, 123, and 125 or equivalent. The principles of stage design and the relation of the scene to the play. Practice in designing stage settings.

NOTE: 3 credits of Drama 101 may be applied to the Drama major.
ECONOMICS-LAW COMBINATION PROGRAM. In addition to the general requirements for graduation listed earlier in the guidebook, a minor of 25 credits in law must be taken over a period of at least three years. First year of law will complete requirements for Bachelor of Arts degree with the following major courses: (215) Principles of Economics, (216) Principles of International Law, (217) Legal, Historical, Institutional Study, and (218) Legal and Economic Analysis.

FOR UNDERGRADUATES

111 (10) CULTURAL ECONOMICS. 1 Q. W. 5. Open to all students. (1) Man and his environment, (2) institutional development of economic society, (3) nature, origins and problems of modern capitalism.

101-202-203 (12ab) PRINCIPLES OF ECONOMICS. 2. Any quarter. Prerequisite: Economics 203. (215) Economic ideas from early times to 1800; (216) economic ideas from 1800 to 1960; (217) economic ideas from 1960 to today.

201 (10) INTRODUCTION TO INTERNATIONAL ECONOMICS. 2 Q. A, W. 2. Prerequisite: Economics 203. (215) Economic ideas from early times to 1800; (216) economic ideas from 1800 to 1960; (217) economic ideas from 1960 to today.

202-203 (14ab) PRINCIPLES OF ECONOMICS. 3. Any quarter. Prerequisite: Economics 203. (215) Economic ideas from early times to 1800; (216) economic ideas from 1800 to 1960; (217) economic ideas from 1960 to today.

203 (118) SOCIAL SCIENCE METHODS. (See Sociology.)

304 (104) PUBLIC FINANCE. 1 Q. S. Su. 4. Prerequisite: Economics 203 and Principles of Federal Financial Policy.

305 (165) STATE AND LOCAL TAXATION. 1 Q. S. Su. 4. Prerequisite: Economics 203. Revenues and expenditures on state and local levels.

311 (111) INTERMEDIATE ECONOMIC ANALYSIS. 1 Q. W. 4. Prerequisite: Economics 203. Methods and concepts of economics, cost and price analysis.


321-322 (12ab) LABOR ECONOMICS. 2 Q. A, W, Su. 3. 3. Prerequisite: Economics 203, or consent of instructor for non-departmental majors.

324 (114) INDUSTRIAL RELATIONS. 1 Q. S. 3. Prerequisite: Economics 203 or consent of instructor for non-departmental majors. Principles and problems that govern the relations of management and labor.

325 (130) SOCIAL INSURANCE. 1 Q. S. 3. Prerequisite: Economics 203. Legal, economic and social aspects of the relation of social insurance to collective bargaining and industrial unrest.

331-332 (117ab) INTRODUCTION TO INTERNATIONAL ECONOMICS. 2 Q. A, W, 2. Prerequisite: Economics 203. (331) Economic ideas from early times to 1800; (332) economic ideas from 1800 to 1960.

333 (109) ECONOMICS OF CONSUMPTION. 1 Q. S. 3. Prerequisite: Economics 203. Principles relating to the spatial relations of economic activities and the influence of locations for private and public facilities, land utilization, regional planning and programs of industrial development.

340 (190) ADVANCED ECONOMIC ANALYSIS. 1 Q. S. 4. Prerequisite: Economics 203. An advanced treatment of methods and concepts of economics, decision-making within the framework of modern economics.

344 (19) WORLD RESOURCES AND INDUSTRIES. 1 Q. S. 4. Prerequisite: Economics 203. Development of resources theory and a functional appraisal of the availability of agricultural and industrial materials.

355 (1) PUBLIC UTILITY ECONOMICS. 1 Q. S. 3. Prerequisite: Economics 203. Economics of utilities, history, regulation, rate-making, public versus private power.

362-363 (102ab) TRANSPORTATION. 2 Q. A, W. 3. 3. Prerequisite: Economics 203. (362) Economic significance of transportation; (363) transportation theory.

374 (120) COMPARATIVE ECONOMIC SYSTEMS. 1 Q. S. 4. Prerequisite: Economics 203. A comparative study of the leading economic systems of modern industrial countries.

376 MONOPOLY AND COMPETITION 1 Q. S. 3. Prerequisite: Economics 311. (376) Theories of imperfect markets and marketable competition as applied to agriculture and business.

378 (115) ECONOMICS OF MONTANA. 1 Q. W. Su. 3. Prerequisite: Economics 203. Economic factors that determine the economic well-being of the people of Montana.

390 (110) AGRICULTURAL ECONOMICS. 1 Q. A. W. Prerequisite: Economics 203. Economic activities, supply and demand for farm products, farm finance, taxation, agricultural policies.

402 (107) CONTEMPORARY ECONOMIC PROBLEMS. 1 Q. S. 3. Prerequisite: Economics 203 or consent of instructor. Current economic problems on national and international levels.

403 (410) MONETARY THEORY. 1 Q. W. 4. Prerequisite: Economics 301. The relationship between money, credit and economic activity.

410 (180) ADVANCED ECONOMIC ANALYSIS. 1 Q. S. 4. Prerequisite: 25 credits in economics including Economics 311.

422 (232) ADVANCED PROBLEMS. Any quarter. 1-2. Prerequisite: 12 credits in Economics and consent of instructor. Total credit allowed toward a major: 6.

ECONOMICS S. M. Admissions

400 (102ab) LECTURE IN ECONOMICS. 1 Q. Any quarter. 1-2. Prerequisite: 15 credits in Economics and consent of instructor. Total credit allowed toward a major: 6.

FOR GRADUATES


699 (299) THESIS. Any quarter. Credit variable. Total credit allowed: 15.

EDUCATION

A May 17, 1954, U. S. Supreme Court decision included this statement:

The introduction of youth into a complex culture has become a major task of the schools and a challenge to all teachers. Seven million more children will be in our elementary schools in 1960. A corresponding increase of pupils will occur in the high schools of America. To achieve the highest possible level of training, the nation needs for teachers will demand over half of the college graduates between today and 1960.

Developing teaching competence involves securing a liberal education and special study in the fields in which the student is to teach, and study and practice in the art of teaching. In addition, the teacher must develop appreciation of people as individuals and as members of society because systematic application of teaching procedures developed involves human relations in their most varied and vital aspects.

Education at Montana State University 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 Montana State University for state certification to teach. Patterns of courses to be completed are designed to prepare individuals for teaching in the field or fields which the student expects to do.

Many University graduates will wish to remain in Montana, but teaching is a stimulating career that knows no geographical boundaries and Montana State University graduates are prepared to teach throughout continental United States and its territories. In increasing numbers, teachers find teaching assignments available in foreign lands. To those who 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, curriculum coordinator, and research director; or it may be used to build up their backgrounds in the field or fields which they teach. Montana State University offers graduate work leading to the Master's and Doctor's degrees.

General certification requirements for Montana's elementary, junior and senior high schools are set forth below. Additional information may be secured from the Dean of the School of Education.

Other Departments and Schools which offer courses acceptable for Education credit include Art, Business Administration, English, Foreign Languages, Home Economics, Journalism, Mathematics, Music, and Physical Education.

GENERAL INFORMATION. The School of Education at Montana State University is accredited by the National Council for the Accreditation of Teacher Education and by the Northwest Association of Schools and Colleges.

It prepares students for teaching, supervising, or administering in the public schools; or for carrying on educational research.

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 the interrelated subject such as counseling, supervising, administering, or research work usually major in Education.

Students taking Education courses for purposes of meeting certification requirements will be given a series of tests for the purpose of obtaining additional information as to the student's individual aptitudes for teaching.
28—EDUCATION

To enroll in courses in Education, a student must have at least a C average in all course work that has been completed.
To continue work in Education, at least a C average must be maintained in all course work.
In order to register for student teaching, a student must have at least a C average in his teaching major, in his teaching minor, and in all courses in Education.

REQUIREMENTS FOR ADMISSION. Pre-admission students preparing for secondary teaching should consult their advisors as to courses to be taken in their freshman and sophomore years. A program in psychology, while it does not count toward the Education major, is prerequisite to all courses in Education and should be taken in the freshman or sophomore year. Those students preparing to teach in the elementary grades should take Introduction to Psychology during the freshman year.

All students who transfer to the School of Education must have at least a C average for all credits earned.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN EDUCATION. In addition to the general requirements for graduation listed elsewhere in this guidebook, candidates for the degree of Bachelor of Arts in Education will meet the following requirements:

PREPARATION FOR TEACHING IN THE SECONDARY GRADES. Candidates must earn a minimum of 40 credits in Education, including the following required courses totaling 31 credits: Education 200, 205, 206, 210, 215, 216, 310, 315, and 320; 15 credits of electives; and elective courses totaling 6 credits selected from other courses in Education. Students wishing to qualify for the secondary School General Standard Certificate are required to earn 45 or more credits in Education to become a teaching certificate minor. Requirements for teaching majors and minors in various areas will be found in the last few pages of the Education section of this guidebook.

Suggested curriculum in secondary education:

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<td>Eng. 101-102—Freshman Composition</td>
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<td>Gen. 101-102—Intro. to Biological Science</td>
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<td>Gen. 103-104—Intro. to the Humanities</td>
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<td>Psych. 110—Introduction to Psychology</td>
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<td>Psych. 101—Psychological Laboratory</td>
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<td>ROTC 101-102-103—Military or Air Science</td>
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<td>History, Political Science, Sociology or Economics (fulfill Group II requirements)</td>
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<td>Eng. 201—Intro. to Education (any quarter)</td>
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<tr>
<td>Educ. 205—Educational Psychology</td>
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<td>Educ. 300—Second Year Teacher Training</td>
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<td>Educ. Methods Course (in one or both teaching majors)</td>
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<td>Teaching Major Sequence (listed later)</td>
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<td>Electives</td>
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<td>Educ. 405—Student Teaching: Secondary (any two quarters)</td>
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<td>Educ. 406—Guidance in the Elementary and Secondary School</td>
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<td>Educ. 452—Educational Measurement</td>
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<td>Electives in Education</td>
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<td>Electives for Major or Minor Sequence, or Electives in Education</td>
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SEQUENCE OF CERTIFICATION COURSES IN SECONDARY EDUCATION TO BE TAKEN BY STUDENTS NOT MAJORING IN EDUCATION.

Freshman or Sophomore year:—Psych 110 (not counted among the 24 credits required for secondary certification).
Sophomore or Junior year:—Educ. 200, 4 credits; Educ. 205, 4 credits
Junior year:—Educ. 305, 5 credits
Senior year:—Educ. 400, a minimum of 5 credits

In the addition to the 18 credits of Education courses listed above for students seeking a secondary certificate, the student must take electives to make up the required total of at least 24 credits. A special methods course in one of the student's teaching fields is recommended. Only one methods course in one any field, however, may be included in the 24 credits. Education 400, or a second quarter of Education 405 is recommended.

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.

For elementary teachers, Group I requirements may be satisfied by General 125, 126, and Mathematics 130.

In addition to the 35 credits of Education courses listed above, students majoring in a secondary certification must meet the following requirements:

For elementary teachers, Group I requirements may be satisfied by General 125, 126, and Mathematics 130.

Preparation for School Librarians. The library science program is designed to train school and teacher-librarians to meet the requirements of the Northwest Association of Secondary and Higher Schools. The minimum requirement for schools of under
100 enrollment includes Education 343, 344, and 345. The student planning a more extended program should consult the library science instructor for advice on additional courses.

FOR UNDERGRADUATES

200 (20) INTRODUCTION TO EDUCATION. 1 Q. A. W. S. Su. 4. Prerequisite: Psychology 110. The American public school and its functions. The development of the elementary school locally and nationally. Analysis of problems, issues, and trends in educational practices.

202 (22) THE ELEMENTARY SCHOOL CHILD. 1 Q. A. S. Su. 5. Prerequisites: Education 200 and Psychology 230. Child development as it applies to the elementary school. The physical and social aspects of child development. The psychological foundations of learning, individual differences, and mental hygiene. The role of the teacher in observing and teaching children in the school environment.

205 (30) EDUCATION 200 (20). INTRODUCTION TO EDUCATION. 1 Q. A. W. S. Su. 4. Prerequisites: Psychology 110 and Education 200. Psychological foundations of learning, individual differences and mental hygiene. Application of the principles and materials for the teaching of conservation education or individual projects.

300 (17) EARLY CHILDHOOD EDUCATION. 1 Q. S. Su. 3. Prerequisite: Education 202. Methods of teaching experience, and consent of instructor. Theory and techniques of kindergarten and primary teaching. The kindergarten: its functions, aims, activities and equipment used for teaching at this level; the development of a unit of kindergarten experiences.

335 (15) REMEDIAL READING. 1 Q. S. Su. 3. Prerequisite: a basic course in teaching reading or teaching experience, and consent of instructor. Diagnosis and treatment of reading difficulties in elementary and secondary grades. Techniques and materials designed for classroom teachers, remedial specialists, and for principals who wish to set up a remedial reading program.

340 (101) CHILDREN'S LITERATURE. 1 Q. W. S. Su. 3. A critical survey of children's literature. The value of selected references for children in the elementary grades. The interpretation of literature and social studies to the development of basic concepts and appreciation in human relationships and community living; evaluating, organizing, and using related materials.

343 (141) ORGANIZATION AND ADMINISTRATION OF THE SCHOOL LIBRARY. 1 Q. A. 4. Su. 3. Objectives of school library services, the library as an educational institution; planning of instruction, library quarters, equipment, and costs. Designed for non-major library aides and book selection for school libraries. Practice in working with selected lists and bibliographies for children and young people. Examination and study of children's bibliographies without library training.

346 (182) SCHOOL LIBRARY REFERENCE MATERIALS. 1 Q. S. S. Su. 3. Prerequisites: Education 343 or equivalent, and consent of instructor. Study and practice in the use of basic reference books and bibliographies commonly found in school libraries, with special attention to the selection of books and bibliographies appropriate to the age and grade levels. Primary emphasis on classroom use rather than the technical aspects of the subject. Credit not allowed for this course and 363.

349 (158) SCHOOL LIBRARY CLASSIFICATION AND CATALOGING. 1 Q. W. 4. S. S. 3. Prerequisites: Education 342 or equivalent, and consent of instructor. Principles and practices of book selection for school libraries. The organization of school library collections; library personnel and organization; cataloging and bibliographic form.

354 (147) AUDIO-VISUAL AIDS. 1 Q. A. W. S. Su. 3. Instructional use of a wide variety of aids—pictures, exhibits, strip films, slides, motion pictures, etc., to achieve objectives of similar equipment. Primary emphasis on classroom use rather than the technical aspects of the subject. Credit not allowed for this course and 363.

358 (158) EDUCATIONAL SOCIOLOGY. 1 Q. S. S. Su. 3. The role of the school in life: the school as a social institution; problems of American life which affect and are affected by the work of the public schools.

360 (129) THE TEACHER ORGANIZATION. 1 Q. S. Su. only. 3. Prerequisite: teaching experience or consent of instructor. The teacher as an individual: organization, management, and financing of American public education with special emphasis on personnel problems, community relations, and organizational structure of schools.

362 (117) METHODS OF TEACHING SECONDARY SUBJECTS. 1 Q. S. W. Su. 3. Prerequisite: 12 credits in Secondary Education, a minor, or one of the science fields. Systematic analysis of problems involved in development of an adequate high school curriculum, instruction, instructional materials, laboratory procedures.

365 (110) SAFETY EDUCATION AND DRIVER TRAINING. 1 Q. S. W. Su. 3. Prerequisite: teaching experience or consent of instructor. An investigation of the problems, techniques, and methods of teaching driving and safety in all educational levels. The role of the driver education teacher; the evaluation and selection of materials for teaching driving, and theoretical aspects of driver education. Emphasis on the development of the skills of the driver education teacher. Includes a course for Safety Education and Driver Training courses in high schools. Offered in cooperation with the American Association of School Administrators and the Montana Highway Patrol.

366 (125) ADVANCED SAFETY EDUCATION AND DRIVER TRAINING. 1 Q. S. W. Su. 3. Prerequisite: teaching experience or consent of instructor. A general introductory treatment of the education of the educable mentally retarded slow learner. Aims, purposes, needs, traits, identification, curriculum provisions and resources.
30—EDUCATION

531 (571) ELEMENTARY CURRICULUM. 1 Q. S. 4. SU. 3. Prerequisite: teaching experience or consent of instructor. Organization and evaluation of elementary school curriculum; major trends in course content, grade placement, and grouping of pupils; legal and social considerations. Of particular value to the school administrator without formal course background in curriculum and education.

532 (277) SECONDARY CURRICULUM. 1 Q. A. 4. SU. 3. Prerequisite: teaching experience or consent of instructor. Survey of secondary school curriculum; organization of maintenance of administration, evaluation, and trends in curriculum development.

535 (361) CURRICULUM WORKSHOP. 1 Q. SU. only. Credit variable. Prerequisites: teaching experience and consent of instructor. Total credit allowed toward a graduate degree: 10.

539 (265) ADVANCED EDUCATIONAL PSYCHOLOGY. 1 Q. W. SU. 3. Prerequisite: the growth and development of children and youth; intelligence and special aptitudes; appraisal and diagnosis of mental development; learning processes; personality adjustment. A systematic analysis of the field of educational psychology at the graduate level.

540 (188) AGRICULTURAL EDUCATION. 1 Q. A. 3. SU. 2-4. Prerequisite: Ed 201 or consent of instructor. A comparison of teaching methods and curriculum organization in the agricultural education. Of particular value to the school administrator without formal course background in curriculum and education.

541 (350) SEMINAR. 1 Q. Any quarter. Credit variable. Prerequisites: consent of adviser and instructor. Credit allowed: 30.
Art 129—130—Ceramics 2-4 2
Art 133—134—Printing Arts 2-4 2
Art 138—Watercolor 3 1
Art 151—Life Drawing 1-2 1-2

BUSINESS ADMINISTRATION

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
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<tbody>
<tr>
<td>(45 credits)</td>
<td>(30-31 credits)</td>
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<tr>
<td>Required Courses:</td>
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</tr>
<tr>
<td>B. A. 183—Advanced Typewriting 2 2</td>
<td></td>
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<tr>
<td>B. A. 184—Intro. to Major British Writers 5 5</td>
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<tr>
<td>B. A. 201—Intro. to Major American Writers 9 9</td>
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<tr>
<td>B. A. 361—Methods of Teaching Book—keeping and Basic Business 2 2</td>
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<tr>
<td>B. A. 384—Gregg Shorthand Theory for Teachers 3 *</td>
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</tbody>
</table>

Electives:
- Bus. Ad. 194 or 304 may be used to complete the minor. 5 credits from the following:

ENGLISH

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
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</thead>
<tbody>
<tr>
<td>(60 credits)</td>
<td>(30-32 credits)</td>
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<tr>
<td>Required Courses:</td>
<td></td>
</tr>
<tr>
<td>Eng. 201—Advanced Composition 3</td>
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<tr>
<td>Eng. 202 or 203—Advanced Composition 3</td>
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<tr>
<td>Eng. 211—212—213—Intro. to Major British Writers 9</td>
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<tr>
<td>Eng. 231—233—Intro. to Major American Writers 9</td>
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<tr>
<td>Eng. 342 or 343—Shakespeare and Contemporaries 3</td>
<td></td>
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<tr>
<td>Eng. 373—The English Language 3</td>
<td></td>
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<tr>
<td>Eng. 361—Literature for High School Teachers 3</td>
<td></td>
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<tr>
<td>Journ. 316 or Drama 212—School Publications or Elementary Acting 3</td>
<td></td>
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<tr>
<td>Speech 111 or Speech 201—Principles of Speech or Oral Interpretation 3-5</td>
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</tbody>
</table>

Electives:
The student should elect at least one course from those listed in the related fields below. He may select his remaining electives from courses in English for which he has the prerequisites or from the courses listed in the related fields.


FOREIGN LANGUAGES

Languages taken in high school will be recognized by the University in fulfilling the equivalent for a teaching major or minor in a language. High school work will be evaluated on the basis of a placement examination certified by the Department of Foreign Languages.

Modern Languages (French or Spanish)

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
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<tbody>
<tr>
<td>(45 credits)</td>
<td>(30 credits or equivalent)</td>
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<tr>
<td>Required Courses:</td>
<td></td>
</tr>
<tr>
<td>F. L. 101-102-103—Elementary 15 15</td>
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<tr>
<td>F. L. 213—Intermediate 4 4</td>
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<tr>
<td>F. L. 215—Advanced 4 4</td>
<td></td>
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<tr>
<td>F. L. 217—Review of Grammar and Composition 3 3</td>
<td></td>
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<tr>
<td>F. L. 301—302—303—Survey of Literature 3 3</td>
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</tbody>
</table>

Electives: Any course numbered 300 or above 13

Classical Languages (Latin)

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
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<tbody>
<tr>
<td>(45 credits)</td>
<td>(30 credits or equivalent)</td>
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<tr>
<td>Required Courses:</td>
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</tr>
<tr>
<td>F. L. 101-102-103—Elementary 15 15</td>
<td></td>
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<tr>
<td>F. L. 213—Intermediate 5 5</td>
<td></td>
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<tr>
<td>F. L. 215—Advanced 4 4</td>
<td></td>
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<tr>
<td>F. L. 217—Latin Readings 5 2</td>
<td></td>
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</tbody>
</table>

Electives:
- F. L. 491—Seminar 16 4

HEALTH AND PHYSICAL EDUCATION FOR MEN

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
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<tbody>
<tr>
<td>(45 credits)</td>
<td>(30 credits)</td>
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<tr>
<td>Required Courses:</td>
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</tr>
<tr>
<td>H. &amp; P. 199—Intro., to Physical Education 3 2</td>
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<tr>
<td>H. &amp; P. 199—First Aid 2 2</td>
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<tr>
<td>H. &amp; P. 210-316, 221—222, 231—232—Coaching—Football, Basketball, Track 8 6</td>
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<tr>
<td>H. &amp; P. 249—Care &amp; Prevention of Athletic Injury 2 2</td>
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<tr>
<td>H. &amp; P. 345—Dance Methods &amp; Materials 2 2</td>
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<tr>
<td>H. &amp; P. 355—Methods of Teaching Phys. Ed. 3 3</td>
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</tbody>
</table>

Electives: Other courses in the department 3


HEALTH AND PHYSICAL EDUCATION FOR WOMEN

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
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<tbody>
<tr>
<td>(45 credits)</td>
<td>(30 credits)</td>
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<tr>
<td>Required Courses:</td>
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<tr>
<td>H. &amp; P. 199—Intro., to Physical Education 3 2</td>
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<tr>
<td>H. &amp; P. 199—First Aid 2 2</td>
<td></td>
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<tr>
<td>H. &amp; P. 210—221—222—Coaching—Football, Basketball 8 6</td>
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<tr>
<td>H. &amp; P. 301—302—Teaching of team sports for women; teaching of individual sports for women 4 4</td>
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<tr>
<td>H. &amp; P. 321—335—Dance Methods and Materials 4 4</td>
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<tr>
<td>H. &amp; P. 335—Methods of Teaching Phys. Ed. 3 3</td>
<td></td>
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</tbody>
</table>

Electives: Other courses in the department 1


2. Students planning to major or minor in this field must report to the Chairman of the Department by the first quarter of the junior year.

HOME ECONOMICS

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
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<tbody>
<tr>
<td>(49 credits)</td>
<td>(35 credits)</td>
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<tr>
<td>Required Courses:</td>
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</tr>
<tr>
<td>H. E. 102—Introduction to Personal and Family Living 3 3</td>
<td></td>
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<tr>
<td>H. E. 104—Introduction to Home Management 3 3</td>
<td></td>
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<tr>
<td>H. E. 141—Intro. to Foods 4 4</td>
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<tr>
<td>H. E. 151—Clothing Selection and Care 2 2</td>
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<tr>
<td>H. E. 155—Textile Selection 3 3</td>
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<td>H. E. 219—Household Equipment 3 3</td>
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<tr>
<td>H. E. 242—Meal Management 4 4</td>
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<tr>
<td>H. E. 249 or 346—Nutrition 4 4</td>
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<tr>
<td>H. E. 277—Clothing Construction 3 3</td>
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<tr>
<td>H. E. 278—Clothing for the Family 3 3</td>
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<tr>
<td>H. E. 302—Household Furnishings 3 3</td>
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<tr>
<td>H. E. 311—Home Living Center 4 2</td>
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<tr>
<td>H. E. 321—Methods of Teaching Home Ec. 3 3</td>
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<tr>
<td>H. E. 341—Food Preservation 2 2</td>
<td></td>
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<td>H. E. 366—Human Development 3 3</td>
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JOURNALISM (Minor Only)

<table>
<thead>
<tr>
<th>Teaching Minor</th>
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<tbody>
<tr>
<td>(30 credits)</td>
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<tr>
<td>Required Courses:</td>
</tr>
<tr>
<td>Journ. 100—Introduction to Journalism 3 3</td>
</tr>
<tr>
<td>Journ. 101—Elementary Photography 3 3</td>
</tr>
<tr>
<td>Journ. 140—Introduction to Radio and Television 2 2</td>
</tr>
<tr>
<td>Journ. 196—Current Affairs 3 3</td>
</tr>
<tr>
<td>Journ. 290—History and Principles of Journalism 3 3</td>
</tr>
<tr>
<td>Journ. 316—School Publications 3 3</td>
</tr>
<tr>
<td>Journ. 330—Principles of Advertising 3 3</td>
</tr>
<tr>
<td>Journ. 385—Advertising Layout and Copy 3 3</td>
</tr>
<tr>
<td>Journ. 386—News Editing 3 3</td>
</tr>
</tbody>
</table>
LIBRARY SCIENCE (Minor Only)

Teaching Major

(30 credits)

Teaching Minor

(24 credits)

as follows:

Required Courses:

Ed. 342—The School Library in Teaching... 3
Ed. 343—Org. and Admin. of the School Library... 4
Ed. 344—School Library Classification & Cataloging... 4
Ed. 345—Book Selection for School Libraries... 4
Ed. 346—School Library Reference Materials... 4
Ed. 347—Audio-Visual Aids... 3
Eng. 381—Literature for the High School Teacher... 3

Electives: 6 credits from the following:

Ed. 340—Children's Literature... 3
Ed. 440—Selection and Processing of Non-Book Library Materials... 3
Ed. 441—Evaluation of School Library Services... 3
Ed. 442—Special Services of the Elem. School Library... 3

MATHMATICS

Teaching Major

Teaching Minor

(30 credits)

(24 credits)

as follows:

Required Courses:

Math 151—Freshman Math I... 5
Math 152—Freshman Math II... 5
Math 153—Freshman Math III... 5
Math 251—Sophomore Math I... 5
Math 252—Sophomore Math II... 5

Special Electives (at least one of the following courses):

Math 301 Algebra for Teachers... 5
Math 304 Geometry for Teachers... 5

Other Electives: Additional courses in mathematics may be selected to complete the 45 credits for the teaching major and the 30 credits for the teaching minor.

Students who have started on the Math 100, 113, 116, 121, 222, 223, sequence may not substitute courses listed above without permission of the department chairman.

Upon satisfactory performance on a placement examination in mathematics, Math 151 and 152 may be waived.

MUSIC

Teaching Major

Teaching Minor

(45 credits)

(30 credits)

as follows:

Required Courses:

Music 111-112—Theory I... 6
Music 121-122-123 (any one quarter)
Intro. to Music Lit... 2
Music 231—Conducting... 3
Music 324 or 325—School Music... 3
Applied Music... 3

Elective Courses: At least 10 credits from the following:

Music 113—Theory II... 3
Music 114—Piano in Class... 2
Music 117-118—Voice in Class... 2
Music 123—String Instrum. in Class... 2
Music 129—Wind and Percussion Instrum.
in Class (2 Q.)... 3
Music 232 or 233—Conducting... 3
Applied Music...

For the teaching major, courses of the School of Music should be added to bring the total to 45 credits.

SCIENCE

BIOLOGICAL SCIENCE

Teaching Major

Teaching Minor

(47-48 credits)

(31-32 credits)

Required Courses:

Bact. 200—Elementary Bacteriology... 3
Bot. 121-122—General Botany... 10
Bot. 123 or 124—Spring or Sum. Flora... 3-4
Bot. 225 or 341—Plant Procs. or Morph. of the Thallophytes... 5
Gen. 300—Conservation of Natural and Human Resources... 3
Zool. 101—General Zoology... 5
Zool. 104—Elementary Zoology... 5
Zool. 106—Field Zoology... 5
Zool. 201—Comp. Vertebrate Zoology... 5
Zool. 202—Human Physiology... 5

PHYSICAL SCIENCE

Teaching Major

Teaching Minor

(45 credits)

(30 credits)

Required Courses:

Chem. 101-102—General Chemistry... 15
or 121-122-123—College Chemistry
Geol. 101—Intro. to Geology... 5
Phys. 111-112-113—General Physics... 15
or 221-222-223—General Physics

Electives: Selected from Chemistry 200, 370, 384 if Chemistry 101-122-123 are taken; and/or courses over 300 in Physics.

GENERAL SCIENCE (Major Only)

(64 credits)

Bot. 121-122—General Botany... 10
Bot. 123—Spring Flora... 3
Chem. 101-102—General Chemistry or 121-122-123—College Chemistry... 15
Gen. 200—Conservation of Man and Natural Resources... 5
Geol. 101—Introduction to Geology... 5
Phys. 111-112-113—General Physics... 15
Zool. 106—Field Zoology... 5
Zool. 202—Human Physiology... 5

SOCIAL SCIENCES (Major Only)

(60 credits)

History 101—History of Western Civilization... 15
Hist. 251-252-253—U. S. History... 12
Pol. S. 202-203—American Government... 8
Soc. 101—Introduction to Sociology... 5
Electives: Limited to upper division courses approved by the advisor; must include one upper division course in Sociology... 5

HISTORY AND POLITICAL SCIENCE

Teaching Major

Teaching Minor

(30 credits)

(15 credits)

Required Courses:

Hist. 101—History of Western Civilization... 15
Hist. 251-252-253—U. S. History... 12
Pol. S. 202-203—American Government... 8
Soc. 101—Introduction to Sociology... 5
Electives: Upper division credits... 2

ECONOMICS AND SOCIOLOGY (Minor Only)

(30 credits)

Required Courses: Econ. 201-202-203—Principles of Economics... 9
Hist. 101-102-103—Development of Western Civilization... 15
Hist. 251-252-253—U. S. History... 12
Soc. 101—Introduction to Sociology... 5
Electives: 4 credits of upper division courses.

SPEECH (Minor Only)

(30 credits)

Required Courses:

Speech 111—Principles of Speech... 3
Speech 115—Voice and Diction... 3
Speech 247—Debate... 2
Speech 261—Beginning Oral Interpretation... 3
Speech 321—Teaching of Speech... 3
Speech 324—Speech Correction... 3
Electives in Speech... 5

ENGLISH writing courses are designed to help the student in everyday use of English as well as in the creative use of the language. The study of literature aims to cultivate the sense and feel of the great currents of thought expressed in the writings of the centuries, and thereby to inculeate understanding of the cultural heritage and environment in which Americans live.

Normally four years at the University are required to complete the work for the Bachelor of Arts degree. The Master of Arts degree is also offered (see Graduate Studies). There are three schedules of studies for undergraduate majors: a course for those desiring a general literary education and possibly planning to pursue graduate studies, for those planning to be high school teachers, and for those who wish to develop skill in writing. Courses include, in addition to the usual types of classroom work, practice in the several special fields. Those who wish to develop their writing abilities may, under the skilled counsel of instructors, undertake verse, stories, novels, and dramas. The study of literature proceeds under similar auspices through reading and discussion.

Graduates teach or enter many occupations and professions including bookstores, publishing houses, newspapers, writing stories or articles, secretariats or assistantships where such skills are highly valued, public relations and advertising offices, radio and other fields of entertainment, and professional or community theater.
SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE

English majors taking the advanced composition sequence listed earlier in the guidebook, the student seeking the degree of Bachelor of Arts with a major in English must complete 50 or more English credits in residence. Majors in English are listed in the three schedules given below. One for students primarily interested in preparing for advanced work in literature, one for students seeking experience and guidance in secondary schools, and one for students planning to teach in the secondary schools. By the beginning of his junior year the student has decided definitely which of the schedules he is to follow.

Special examinations may be taken and a paper submitted by all students working for honors in English. Any incoming senior who has a university index in his studies of at least 3.60 may substitute for this a body of creative writing. A student may begin his junior year the student should have decided definitely which of the English sentence and paragraph.

I. All prospective English majors are expected to take English 101-102-103 in their first year, the Introduction to Humanities (General 151-152-153). 5 credits of which will be counted toward the English major.

II. All students are expected to take, in addition, English 201: English 342 and 343 and two quarters each from English 211-212-213, 221-222-223, 231-232-233.

III. Students who are hoping to go on to do graduate study in English should supplement the above courses with the following required minimum:

SCHEDULE A: LITERATURE


SCHEDULE B: CREATIVE WRITING

Students whose major interest is in writing of fiction and poetry should supplement the above courses with additional English credit.

This schedule is aimed at helping the student toward individual expression by instruction in writing, a working knowledge of modern techniques, and a foundation in critical self-appraisal.

REQUIREMENTS. In addition to the basic departmental requirements:

FRESHMAN AND SOPHOMORE YEARS

English 101 (Creative Composition) plus one quarter of English 107 (Imaginative Writing). The completion of English 106 and one credit of 107 will fulfill the requirement of English 102-105. Successive enrollment of 101-102-103 may substitute for 101-102.

Or: in the freshman and sophomore years he must take at least 5 credits in English 107 and 202-203.

JUNIOR AND SENIOR YEARS

English 305 (Techniques of the Modern Novel), English 493 (Literary Criticism), and either 491 or 492. At least 10 credits in English 301-302-303 (12abc) and C and D (see below) must be taken in English 496-499.

SCHEDULE C: TEACHING

Students planning to teach English in high school should supplement the core courses with the following required minimum:

A third quarter of 211-212-213; a third quarter of 221-222-223; 375, 202 or 203 or one quarter of 231-232-233; Journalism 211 or Drama 212; English 461; English 381.

The student should elect at least one course from those listed in the related fields and at least two quarter credits from courses in English for which he has the prerequisites or from the courses listed in the related fields.


IV. A reading knowledge of a foreign language, classical or modern, is required. Act 232-232-232; Music 155-156-160; Psychology 240; French 201, 202, 203; German 201, 202, 203; Spanish 201, 202, 203. The study of study in sociology and history (especially 241-242-243) are strongly recommended.

All courses listed under General Humanities and numbered above 200 may be counted toward an English Major.

COMPOSITION, LANGUAGE AND LITERATURE

FOR UNDERGRADUATES

201 (A). PREPARATORY COMPOSITION. 1 Q. A. W. 0 (5-0).

201 (B). COMPOSITION AND ARTICLES. 1 Q. A. W. 2 (5-0).

NOTE: Either English 104-105 (10 credits) or 101-102-103 (9 credits) is required of all students. Majors in the department complete 101-102-103 in alternate years and 104-105 in alternate years. This sequence begins, i.e., he may not begin with English 104 and continue to English 103 the following year. The student in creative writing will take 106 (5 credits) and 107 (1 credit) in place of 102-103 (total 6 credits).


3.3.3. See NOTE above. Students who receive a grade of "A" in 102 may substitute for 101-102-103. Gathering and organization of materials and development of ideas. Structure, form, and variations of the English sentence and paragraph.

104-105 (11ab) FRESHMAN COMPOSITION. 2 Q. A. W. Su.

5.5. See NOTE above. Students who receive a grade of "A" in 104 may substitute for 101-102-103. Gathering and organization of materials and development of ideas. Structure, form, and variations of the English sentence and paragraph.

106 (17) IMAGINATIVE WRITING. 2 Q. A. S. 1, 1. Writing stories, sketches, essays, verse, and the study of stories, sketch, stories, verse, and short fiction. (In credit in this course fulfills the requirement in English 105, but also permits, with consent of the instructor, entrance into English 301.)

107 (17) IMAGINATIVE WRITING. 2 Q. A. S. 1, 1. Writing stories, sketches, essays, verse, and the study of these forms. Total credit allowed: 2.

201-202-203 (30ab) ADVANCED COMPOSITION AND CREATIVE WRITING. 3 Q. A. W. 3. Students may enter any quarter. Prerequisites: English 101-105 or 101-102-103 (201) Study and practice of expository writing; (202) Writing of short prose or poetry; (203) Creative writing.

211-212-213 (30ab) INTRODUCTION TO MAJOR BRITISH WRITERS. 3 Q. A, W. Su. 3, 3, 3. Any student may enter any quarter. A study with creative writing literature excluding Humanities cannot take this course. (211) Shakespeare through Marlowe; (212) Dryden through Blake; (213) Wordsworth through Yeats.

221-222-223 (30ab) INTRODUCTION TO MAJOR AMERICAN WRITERS. 3 Q. A, W. Su. 3, 3, 3. Students may enter any quarter. A student with 6 credits of American Literature may take this course. (221) Franklin through Thoreau; (222) Hawthorne through Dickinson; (223) Twain through Hemingway.

241-242-243 (17ba) THE DRAMA. 3 Q. A. W. Su. 3, 3, 3. Students may enter any quarter. Prerequisites: English 101 and 201 or consent of instructor. A chronological survey of the novel, with emphasis on the short story, although longer fiction may be undertaken through submission of a working plan and sample chapters, and consent of instructor.

204 (161) LETTER AND REPORT WRITING. 1 Q. A. W. 4. Various types of pre-written letters, reports, and business correspondence, with emphasis upon tone, form, and organization and writing factual reports.


311 (150) LITERATURE FOR THE HIGH SCHOOL TEACHER. 1 Q. A. Su. 3. The development of the American short story with reference to trends and types. Readings from representative American short story writers.


334 (130) THE AMERICAN SHORT STORY. 1 Q. A. Su. 3. The development of the American short story with reference to trends and types. Readings from representative American short story writers.

341-342-343 (150bc) SHAKESPEARE AND CONTEMPORARIES. 3 Q. A. W. Su. 3, 3, 3. Students may enter any quarter. Prerequisite: 9 credits of literature. A critical and historical survey of the playwright's work with special emphasis on dramatic conventions, Renaissance ideology, and Shakespeare's place in the development of modern drama.

204-205 (160a) ADVANCE GRAMMAR. 1 Q. A. Su. 3. A survey of the development of the American short story with reference to trends and types. Readings from representative American short story writers.

351-352-353 (165abc) MEDIEVAL LITERATURE. Chaucer and Shakespeare. Major literary works of art in the Middle Ages, particularly in English from 000 to 1500; (252) Chaucer. Given in 197-
FOR FOREIGN LANGUAGES

401-402-403 (160abc) ADVANCED CREATIVE WRITING. 3 Q. A. W. S. Su. 2, 2, 2. Student may enter any quarter. Prerequisites: 301-302-303 or consent of instructor. Writing of fiction, with emphasis on the novel, although creative non-fiction may be continued with consent of instructor.

311 (102) MAJOR REQUIREMENTS. 1 Q. A. W. S. Su. 3. Prerequisite: 12 credits in literature. Milton will be given in 1958-59 and in alternate years as an alternative to 333 (Chaucer).

494-495 (12abc) CONTEMPORARY TEMPORARY LITERATURE: Poetry. 2 Q. W. S. Su. 3. Prerequisite: 12 credits in literature. The best work of some twentieth-century poets. The selection of poets will vary from quarter to quarter.

451-452-453 (171abc) RENAISSANCE LITERATURE. 3 Q. A. W. S. Su. 2, 2, 2. Students may enter any quarter. Prerequisite: 12 credits in literature. European literature of the Renaissance, with primary emphasis on British literature.

361 (105) METHODS OF TEACHING ENGLISH. 1 Q. W. only.

GENERAL OCCUPATIONS, materials and organization of the curriculum from grades 7 through 12. Ex-teacher or teaching assistant in teaching and in correcting student work.

FOR GRADUATES


699 (200) THESIS. Any quarter. Credit variable. Total credit allowed: 12.

FOREIGN LANGUAGES provide instruction and practice in speaking, reading, and writing the tongues of other peoples for professional, governmental, or cultural purposes. Intercommunication among the nations of the world depends upon knowledge of modern languages, and such understanding is particularly necessary in the increasing importance of the United States increases in global affairs. Educated men and women find language skills not only important for social reasons, but as equipment for research in many fields of humanistic and scientific inquiry. Knowledge of a foreign language is also recognized as contributing greatly to the student's ability to use his own tongue. Such is particularly true of the classical languages, Latin and Greek, while the Department of Foreign languages is thought of ancient times. These classical languages, as well as modern French, German, Italian, Russian, and Spanish, are offered at the University. For centuries France has been the great diplomatic and cultural language of the world, and has produced one of the world's greatest literatures. German, closely related to English, is an important language of science, Spanish, important in literature and commerce, is spoken in Spain and much of the western hemisphere.

The time needed to meet requirements for a major in one of the languages depends on language study prior to college entry, and concentration of studies in college. The department offers a Master of Arts degree to the most qualified and to an undergraduate major in all the above listed languages except Greek, Italian and Russian. Grammar, speaking, reading, and writing are taught simultaneously to undergraduate beginning and intermediate courses. Credit is given for language course work.

Language majors may find employment as teachers, interpreters, translators, air line hostesses, in commercial and scientific fields, and in various branches of the government.

HIGH SCHOOL PREPARATION. Languages taken in high school may be recognized by the Department of Foreign Languages, if the work is approved and if the student has met the language requirements and if in fulfilling the requirements for a major in languages. High school work will be evaluated on the basis of a placement examination given by the Department of Foreign Languages.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN LANGUAGES. Not more than 90 credits in all foreign languages may be counted toward the Bachelor of Arts degree. Placement examinations are required of all entering students who continue languages in which high school entrance credit is given. Students who have one year of high school in a modern language should enter course 101, those with two units, course 215; those with three units, courses numbered 300. The number of credits for a major in a foreign language varies with the student's high school preparation. Requirements are set forth below in connection with each language.

FRENCH

MAJOR REQUIREMENTS. Candidates for the degree of Bachelor of Arts with a major in French must meet the following requirements in addition to the general requirements for graduation listed earlier in the guidebook:

1. French 101 to 217 inclusive, or equivalent.
2. French 301-302-303 and at least 15 credits selected from courses numbered over 300.
3. Four quarters, or equivalent, of another language.
4. Two quarters in history of Europe, chosen from the following: History 297 or 200, 210, 211, 215-216, 314, 318 and 326.

FOR UNDERGRADUATES

101 (11a) ELEMENTARY FRENCH. 1 Q. A. W. S. Su. 5. Prerequisite: French 101 or equivalent.
102 (11b) ELEMENTARY FRENCH. 1 Q. W. S. Su. 5. Prerequisite: German 101 or equivalent.
103 (11c) ELEMENTARY FRENCH. 1 Q. A. W. S. Su. 5. Prerequisite: French 102 or equivalent.
213 (13) INTERMEDIATE FRENCH. 1 Q. A. W. S. Su. 4. Prerequisite: French 213 or equivalent.

FOR UNDERGRADUATES AND GRADUATES

300 (101) FRENCH CONVERSATION. 1 Q. Any quarter. 1. Prerequisite: French 217. Total credit allowed: 3.
301-302-303 (10abc) SURVEY OF FRENCH LITERATURE. 3 Q. A. W. S. Su. 3. Prerequisite: French 217.
311 (105) INTERMEDIATE FRENCH. 1 Q. A. W. S. Su. 3. Prerequisite: French 105 or equivalent.
315 (16) ADVANCED FRENCH. 1 Q. W. S. Su. 4. Prerequisite: French 213 or equivalent.
217 (17) FRENCH GRAMMAR REVIEW AND COMPOSITION. 1 Q. A. S. 3. Prerequisite: French 215 or equivalent.

FOR UNDERGRADUATES AND GRADUATES

500-501-502 (101-102) ADVANCED FRENCH. 1 Q. Any quarter. 1. Prerequisite: French 217. Total credit allowed: 3.
513 (113) INTERMEDIATE FRENCH. 1 Q. A. W. S. Su. 3. Prerequisite: French 215 or equivalent.
514 (114) FRENCH LITERATURE. 2 Q. A. W. S. Su. 3. Prerequisite: French 215 or equivalent.
515 (115) CONTEMPORARY FRENCH LITERATURE. 1 Q. S. 3. Prerequisite: French 215 or equivalent.
491 (125) SEMINAR. 1 Q. Any quarter. 2-3. Prerequisite: French 217. Studies of works of outstanding writers. Total credit allowed: 15.

FOR GRADUATES

699 (299) THESIS. Any quarter. Credit variable. Total credit allowed: 15.

GENERAL LITERATURE

161 (51) CLASSICAL MYTHOLOGY. 1 Q. Any quarter. 2. Open to all students. The principal deities and myths of the Greeks and Romans will be studied from the historical and social viewpoints in the light of current criticism of the subject. Knowledge of the Greek and Roman languages is not necessary.

211 (51) FOREIGN LITERATURE IN TRANSLATION. 3 Q. A. W. S. Su. 2. Exploration of the works of foreign authors in translation. The works of a single author or of a group of authors may be treated. Periods and literatures will vary from quarter to quarter. Total credit allowed: 6.

450 (153) STUDIES IN COMPARATIVE LITERATURE. 1 Q. Any quarter. The origin of literary ideas and the dissemination of these ideas, with a comparative study of the way they have been changed or modified in passing from author to author and from country to country.

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 guidebook:

1. German 101 to 217 inclusive, or equivalent.
2. German 301-302-303 and at least 15 credits selected from courses numbered over 300.
3. Four quarters, or equivalent, of another language.
4. Two quarters in history of Europe, chosen from the following: History 297 or 200, 210, 211, 215-216, 314, 318 and 326.

FOR UNDERGRADUATES

101 (11a) ELEMENTARY GERMAN. 1 Q. A. W. S. Su. 5. Prerequisite: German 101 or equivalent.
102 (11b) ELEMENTARY GERMAN. 1 Q. W. S. Su. 5. Prerequisite: German 102 or equivalent.
103 (11c) ELEMENTARY GERMAN. 1 Q. A. S. Su. 5. Prerequisite: German 102 or equivalent.
213 (13) INTERMEDIATE GERMAN. 1 Q. A. W. S. Su. 4. Prerequisite: German 103 or equivalent.
215 (15) ADVANCED GERMAN. 1 Q. W. S. Su. 4. Prerequisite: German 213 or equivalent.

217 (17) GERMAN GRAMMAR REVIEW AND COMPOSITION. 1 Q. A. S. 3. Prerequisite: German 215, or equivalent.

FOR UNDERGRADUATES AND GRADUATES

300 (101) GERMAN CONVERSATION. 1 Q. Any quarter. 1. Prerequisite: German 217. Total credit allowed: 3.

301-302-303 (103abc) SURVEY OF GERMAN LITERATURE. 3 Q. A, W, S. 2,2,2. Prerequisite: German 217.

341 (108) 18th CENTURY GERMAN LITERATURE. 1 Q. A. 3. Prerequisite: German 217. Given odd numbered years.

351 (107) 19th CENTURY GERMAN LITERATURE. 1 Q. A. 3. Prerequisite: German 217. Given even numbered years.

401 (125) SEMINAR. 1 Q. Any quarter. 2-3. Prerequisite: German 217. Works of outstanding writers. Total credit allowed: 25.

FOR GRADUATES

699 (299) THESIS. Any quarter. Credit variable. Total credit allowed: 15.

GREEK

No major is given in Greek.

101 (11a) ELEMENTARY GREEK. 1 Q. W. Su. 5.

102 (11b) ELEMENTARY GREEK. 1 Q. S. 5. Prerequisite: Greek 101.

103 (11c) ELEMENTARY GREEK. 1 Q. A. Su. 3. Prerequisite: Greek 102.

213 (13) INTERMEDIATE GREEK. 1 Q. W. 3. Prerequisite: Greek 103.

215 (15) ADVANCED GREEK. 1 Q. S. 3. Prerequisite: Greek 213.

ITALIAN

No major is given in Italian.

101 (11a) ELEMENTARY ITALIAN. 1 Q. A. 5.

102 (11b) ELEMENTARY ITALIAN. 1 Q. W. 5. Prerequisite: Italian 101 or equivalent.

103 (11c) ELEMENTARY ITALIAN. 1 Q. S. 5. Prerequisite: Italian 102.

213 (13) INTERMEDIATE ITALIAN. 1 Q. A. 4. Prerequisite: Italian 103.

215 (15) ADVANCED ITALIAN. 1 Q. W. 4. Prerequisite: Italian 213.

LATIN

MAJOR REQUIREMENTS. Candidates for the degree of Bachelor of Arts with a major in Latin must meet the following requirements in addition to the general requirements for graduation listed earlier in the guidebook.

1. Latin 101 to 217 inclusive, or equivalent.
2. At least 18 credits selected from Latin Seminar (Latin 491).
3. The Ancient World, History 203-204.
4. Greek 101-102 may be substituted for a Latin course above 217.

FOR UNDERGRADUATES

101 (11a) ELEMENTARY LATIN. 1 Q. A. Su. 5.

102 (11b) ELEMENTARY LATIN. 1 Q. W. 5. Prerequisite: Latin 101 or equivalent.

103 (11c) ELEMENTARY LATIN. 1 Q. S. 5. Prerequisite: Latin 102 or equivalent.

213 (13) INTERMEDIATE LATIN. 1 Q. A. Su. 4. Prerequisite: Latin 103 or equivalent.

215 (15) ADVANCED LATIN. 1 Q. W. 4. Prerequisite: Latin 213 or equivalent.

217 (17) LATIN READINGS. 1 Q. Any quarter. 2-5. Prerequisite: Latin 213, or equivalent. Advanced readings from outstanding Latin writers.

FOR UNDERGRADUATES AND GRADUATES

491 (125) SEMINAR. 1 Q. Any quarter. 2-3. Prerequisite: Latin 217. Works of outstanding writers. Total credit allowed: 25.

FOR GRADUATES

699 (299) THESIS. Any quarter. Credit variable. Total credit allowed: 15.

RUSSIAN

No major is given in Russian.

101 (11a) ELEMENTARY RUSSIAN. 1 Q. A. 5.

102 (11b) ELEMENTARY RUSSIAN. 1 Q. W. 5. Prerequisite: Russian 101 or equivalent.

103 (11c) ELEMENTARY RUSSIAN. 1 Q. S. 5. Prerequisite: Russian 102 or equivalent.

213 (13) INTERMEDIATE RUSSIAN. 1 Q. A. 4. Prerequisite: Russian 103 or equivalent.

215 (15) ADVANCED RUSSIAN. 1 Q. W. 4. Prerequisite: Russian 213 or equivalent.

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 guidebook.

1. Spanish 101 to 217 inclusive, or equivalent.
2. Spanish 213 and 13 additional credits selected from courses numbered over 300.
3. Four quarters, or equivalent, of another language.
4. History 285-286-287 or two quarters of this course and History 335.

FOR UNDERGRADUATES

101 (11a) ELEMENTARY SPANISH. 1 Q. A. W. Su. 5.

102 (11b) ELEMENTARY SPANISH. 1 Q. W. S. Su. 5. Prerequisite: Spanish 101 or equivalent.

103 (11c) ELEMENTARY SPANISH. 1 Q. A. S. Su. 5. Prerequisite: Spanish 102 or equivalent.

213 (13) INTERMEDIATE SPANISH. 1 Q. W. 4. Prerequisite: Spanish 217 or equivalent.

215 (15) ADVANCED SPANISH. 1 Q. W. S. Su. 4. Prerequisite: Spanish 213 or equivalent.

217 (17) SPANISH GRAMMAR REVIEW AND COMPOSITION. 1 Q. A. S. 3. Prerequisite: Spanish 215 or equivalent.


FOR UNDERGRADUATES AND GRADUATES

300 (101) SPANISH CONVERSATION. 1 Q. Any quarter. 1. Prerequisite: Spanish 217. Total credit allowed: 3.


351 (107) SPANISH DRAMA OF THE GOLDEN AGE. 1 Q. W. 3. Prerequisite: Spanish 217. Don Quixote and other works of Cervantes. Given even numbered years.

353 (107) SPANISH DRAMA OF THE GOLDEN AGE. 1 Q. W. 3. Prerequisite: Spanish 217. Don Quixote and other works of Cervantes. Given even numbered years.

351 (111) 19th CENTURY SPANISH NOVEL. 1 Q. A. 3. Prerequisite: Spanish 217. Given odd numbered years.

353 (113) 19th CENTURY SPANISH DRAMA. 1 Q. W. 3. Prerequisite: Spanish 217. Given odd numbered years.

363 (119) CONTEMPORARY SPANISH NOVEL. 1 Q. W. 3. Prerequisite: Spanish 217. Given odd numbered years.

371-372 (115ab) SPANISH-AMERICAN LITERATURE. 2 Q. W. S. 3. Prerequisite: Spanish 217. General survey of the literary movement from Colonial times through the Modernista movement; (372) contemporary prose writers with emphasis on the novel. Given odd numbered years.

381 SPANISH POETRY. 1 Q. A. 3. Prerequisite: Spanish 217. Given odd numbered years.

425 (157) SEMINAR IN SPANISH-AMERICAN LITERATURE. 1 Q. Any quarter. 2-3. Prerequisite: Spanish 217. Outstanding authors and literary movements of Spanish-America. Total credit allowed: 15.

699 (299) THESIS. Any quarter. Credit variable. Total credit allowed: 15.

THE TEACHING OF FOREIGN LANGUAGES

291 (102) METHODS OF TEACHING FOREIGN LANGUAGES. 1 Q. S. Su. 3. Prerequisite: Spanish 217 or equivalent, or concurrent registration. Fundamental principles, concepts, objectives, and methods involved in the teaching of a foreign language. Required of teaching majors and minors.

401 (S164) FOREIGN LANGUAGE WORKSHOP. 1 Q. Su. only. 3. Prerequisite: consent of instructor. New methods and techniques in foreign language instruction. Credit not allowed for this course and identical course, Education 401.

Foreign Languages Laboratory
FORESTRY is the scientific management of timber resources for continuous production, including the processing of wood products, and embraces as well the related fields of range, wildlife, watershed, and soil management.

The four-year curriculum leads to the degree of Bachelor of Science in Forestry. The degrees of Master of Science in Forestry, Master of Forest Management, and Master of Wildlife Management are offered (see Graduate Studies). Within the general forestry curriculum the student may specialize at the undergraduate level in Forest, Range or Wildlife Management, Wood Utilization, Silviculture, Soil and Conservation, Forest Fire Control, Watershed Management, or Merchandising of forest products. Laboratory and field work are distinguishing characteristics of forestry training, affording opportunities for putting into practice the theoretical knowledge emphasized in the classroom.

Graduates find positions in state and federal government service for work in public forests or in conservation or wildlife organizations. Others are employed by private logging, lumber, and forest products industries. Those who possess a graduate degree may find opportunities in research, as teachers in universities and colleges, or as consultants in special phases of forestry.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, the student needs algebra and geometry.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN FORESTRY. A minimum of 102 credits of work, not including credits obtained by required work in Military Science and Physical Education.

To continue as majors in the School of Forestry during the second, third, and fourth years, students must have a grade point average of 2.0 on all credits for which registered and for which a final grade is received.

Each student is required to spend not less than two summers of three months each, in successful employment, gaining field experience through some type of approved work pertinent to his curriculum.

FIELD COURSE EXPENSE DEPOSITS. The following field course expense deposits are required for advanced courses in the School of Forestry; 200, $5.00; 250, $5.00; 251, $5.00; 253, $5.00; 312, $5.00; 325, $10.00; 327, $5.00; 401, $5.00; 411, $5.00; 441, 9.00; 442, 9.00; 443, 9.00; 445, 9.00; 460, 9.00; 470, 9.00; 471, 9.00; 472, 10.00; 473, 5.00; 481, 9.00. Insurance, $2.75 each quarter.

All seniors must be prepared to spend 90% of their time spring quarter off campus and should be prepared to make additional deposits to meet actual field expenses.

FOREST AND CONSERVATION EXPERIMENT STATION

Don D. Baldwin (Nursery and Experimental Forest Superintendents), S. C. Covington (Soils Technician), R. H. Den, (Forest Entomology), Carl E. McPhee (Wildlife Management), Richard D. Taber (Forest Fire Control), Richard D. Taber (Forest Management), Ross A. Williams, Director (Forest Management).

The Forest and Conservation Experiment Station, School of Forestry, Montana State University, operates under Acts of Congress (Section 4, Act, June 7th, 1924 as amended, 16-U.S.C.-567), and Chapter 141, Laws of Montana of 1937. The Dean specified the purpose of the Station was:

To study the growth and the utilization of timber . . . To determine the relationship between the forest and water conservation and water quality regulation; the forest and pasturage for domestic livestock and wild life; the forest and recreation and those other direct and indirect benefits that may be secured by the management of or the establishment of forest or woodlands . . . To study and develop the mobile of wildlife 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 University of Montana, the state forester and the state board of land commissioners, the state fish 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, special funds appropriated by the Legislature of Montana, income from the sale of forest products, grants, gifts, and special leases, and by special grants. Some research is concentrated on the $2,000 acre Lubrecht Experiment 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 the State in printed bulletins, leaflets, and circulars.

The following courses must be completed for the degree of Bachelor of Science in Forestry.

FIRST YEAR

With minor exceptions, the first year and the autumn quarter of the second year are the same for all students enrolled in the School of Forestry. Students are expected to select a specific course of study before they begin the winter quarter of the second year.

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<th>Course</th>
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<td>For. 101—Surveying Forestry</td>
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<td>For. 111—General Chemistry</td>
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<td>For. 151—Principles of Speech</td>
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<td>For. 132—Forest Botany</td>
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<td>For. 153—Plant Trigonometry</td>
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<td>ROTC 101-2—Military or Air Science</td>
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FOREST CONSERVATION

SECOND YEAR

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<td>For. 250—Mapping</td>
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<td>For. 260—Dendrology</td>
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<td>Phys. 111—General Physics</td>
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<td>Econ. 201—Principles of Economics</td>
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<td>For. 255—Elements of Pest Control</td>
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<td>Bot. 250—Elementary Ecology</td>
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<td>H.&amp;P.E. 110—Introduction to Psychology</td>
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<td>ROTC 101-2—Military or Air Science</td>
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THIRD YEAR

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<td>For. 280—The Renewable Resources and their Conservation</td>
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<td>Econ. 202—Principles of Economics</td>
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FOURTH YEAR

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FOREST ECONOMICS

SECOND YEAR

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For. 443—Utilization Field  
Prerequisites: Forestry 290-291 or consent of instructor. Artificial reproduction of forest crops; reforestation, management, silviculture and soils to small woodland holding.

310 (105) SILVICS. 1 Q. A. 4 (0-0). Prerequisites: Botany 225 and 250. The fundamental physiological and biological factors of climatic, edaphic, and biotic factors on the growth and development of forest trees and the choice of species for a given site. Principles underlying the regeneration, care, and protection of forest stands.

311 (117) FOREST FIRE PLANS. 1 Q. W. 3 (0-0). Prerequisites: Forestry 310. The production of forest products; reproduction methods, intermediate cuttings, and cultivation operations. Field trips.

312 (109) SEEDING AND PLANTING. 1 Q. S. 3 (2-4). Prerequisites: Forestry 311. Artificial reproduction of forest crops; collection, extraction, storage, and testing of forest seed; direct seeding; nursery practice; forest planting. Field trips.

320 (114) POSTFIRE FORESTRY. 2 Q. 1 A, 4 4 (3-4). Prerequisites: Mathematics 113 and Forestry 282 for 300; Mathematics 125 is recommended for 301. Application of mathematical methods to forest and range measurement problems. Measurement of the volume and content of timber products; determination of the volume, growth, and yield of forest stands.

321 (116) FARM FORESTRY. 1 Q. S. 3 (2-4). Prerequisites: junior standing in the School of Forestry. The application of the principles of silviculture to forest regeneration, management, silviculture and soils to small woodland holding.

322 (118) ADVANCED SURVEYING. 2 Q. W. 2.2 2.2 (0-0). Prerequisites: Forestry 260, 202-203, and consent of instructor. (350) simple curve definitions, their theory and use; (351) selected topics of surveying not covered in Forestry 252-253.

352 (151) AERIAL PHOTO INTERPRETATION. 1 Q. W. 3. (1-4). Prerequisite: consent of instructor. Techniques of photogeological interpretation for forest, range, and wildlife cover mapping, volume estimation. Also offered as an extension short course for credit.

353 (137) TIMBER MECHANICS. 1 Q. W. 3 (0-4). Prerequisite: Physics 111. Graphical and analytic statics applied to simple structures.

360 (120) GENERAL RANGE MANAGEMENT. 1 Q. A. 5 (4-3). Prerequisite: junior standing. An introduction course to the field of range management, including the proper utilization of range, control and distribution of livestock on range. Range improvement methods and the regulation of kind of animals and their use.

361 (121) RANGE FORAGE PLANTS. 1 Q. S. 4 (0-9). Prerequisites: Forestry 360 and Botany 386. Economic range of forage plants and their adaptation and control of forage problems in their use.

370 (138) GENERAL WILDLIFE MANAGEMENT. 1 Q. W. 4 (0-4). Prerequisite: junior standing. Principles of wildlife as a land resource.


403 (125) FOREST RECREATION. 1 Q. S. 3 (1-4). Historical development, objectives and problems in the recreational use of forests and other wildlands. Practices of planning and directing recreational facilities and structures. Wildland living.

410 (102) FOREST SOIL CLASSIFICATION AND MAPPING. 1 Q. S. 3 (2-4). Prerequisites: Forestry 210 and 310, Botany 225 and 250. Relationships of the chemical, physical, and biological properties of soils to forest tree growth.

419 (130) VALUATION. 1 Q. A. 4 (3-4). Prerequisite: Forestry 210 and 311. A general course in soils of forest and range land; morphological, physical, and chemical properties; soil erosion control.

420 (107) SAWMILLING AND LUMBERING. 1 Q. S. 3 (2-4). Prerequisites: Forestry 340 and Botany 225 of consent of instructor. Principles of sawmill and planer operations, their organization and equipment. Lumber grades and uses, by-products and residue utilization.

421 (148) FOREST ECONOMICS. 1 Q. W. 5 (0-5). Prerequisites: Economics 201 and Forestry 430. Economic problems and principles involved in the use of the forest resource and in the distribution of forest products and services.

425 (146) REGIONAL SILVICULTURE. 1 Q. S. 2 (0-Field). Prerequisites: Botany 225 or consent of instructor. Application of silvicultural methods to the principal commercial forest species, types, and regions of the United States.

431 (128) WOOD GLUE AND PHYSICAL PROPERTIES. 1 Q. S. 3 (3-0). Prerequisites: Forestry 284 and junior standing in the School of Forestry. The production of forest products and processes including Naval Stores, pulp, paper and modified wood fibers.

454-455-456 (136abc) FOREST ENGINEERING. 2 Q. W. 2-2.5. 454 and 455 are for engineering majors only. (454) Collection of field data for a logging plan. Location of main and spur roads (Field work). (455) Earthwork calculations, mass diagrams, estimates of road and
40—GENERAL COURSES

logging costs necessary to complete the logging plan. (456) Application of forest engineering, methods and techniques, time and cost studies (F 70).

450 (129) RANGE TECHNIQUES. 1 Q. A. 4 (2-8). Prerequisite: Forestry 369. Range surveys, condition, and trend analysis, utilization analysis, damage control, control of range fire, the nutritional requirements of livestock and big game animals.

461 (140) RANGE LIVESTOCK NUTRITION. 1 Q. W. 3 (2-3). Prerequisite: Forestry 360. The elements of animal nutrition. The nutritional characteristics of range forage plants. The nutritional requirements of livestock and big game animals.

462 (141) RANGE PRODUCTION. 1 Q. S. 2 (2-4). Prerequisite: Forestry 360. Selection, production, and management of range livestock.

453 (125) RANGE ECONOMICS. 1 Q. S. 3 (3-0). Prerequisites: Forestry 360, Economics 201. Range regions from an economic standpoint. Ranch value and income, tenure, taxation, fees, and leases. Economic utilization of range resources through range improvements, ranch organization and appraisal.

454 (142) RANGE ADMINISTRATION. 1 Q. S. 2 (2-0). Prerequisite: Forestry 360. Legislation and policies developed for the acquisition of federal, state and private range properties. Administration of range agencies and methods for regulation of grazing on public lands.

455 (144) REGIONAL RANGE MANAGEMENT. 1 Q. S. 6. Prerequisites: Forestry 441, 482. A study of regional range management problems and situations. Work done on senior trip spring.

470 (156) ADVANCED WILDLIFE MANAGEMENT. 1 Q. A. 5 (2—field weekends). Prerequisites: Zoology 306, 350, Botany 353, Advanced work in the application and application of sociology, ecology, and behavior of birds and mammals to management.

471 (158) WILDLIFE HABITAT MANAGEMENT. 1 Q. S. 5 (4—field weekends). Prerequisite: Forestry 441. May be taken concurrently with Forestry 472. Principles and techniques involved in wildlife habitat management and management practices on wildlife populations, the integration of overall land and wildlife management and the assessment of management success.

472 (168) BIG GAME MANAGEMENT. 1 Q. W. 3 (2—Pre­

473 (169) FIELD WILDLIFE MANAGEMENT. 1 Q. S. 6. Prerequisites: Forestry 441, 482. A study of land and wildlife management practices on wildlife populations.

490 (172) RESOURCE MANAGEMENT AND CONSERVA­TION PLANNING. 1 Q. A. 4 (3-4). Prerequisite: Forestry 310, 360, 482. (490) Methods of analyzing and planning the multiple use management of renewable resources: the physical, economic, and political aspects involved in integrating resource development. Problem analysis will lead to the development and application of management practices as a basis of choice in conservation planning. (481) Emphasis on the recognition and work in working out problems of wildlife management and developing conservation plans for selected land areas involving several land uses.

482 (170) SOIL AND WATER CONSERVATION. 1 Q. A. 4 (3-4. Prerequisite: Forestry 411. Principles and methods of soil and water conservation related to soil type, condition, and land use. Field tech­niques in land use planning and soil and water conservation.

484 (171) WATERSHED MANAGEMENT. 1 Q. W. 5 (4-0). Prerequisite: junior or senior standing. A study of the controlling factors necessary for the intelligent application of sound management principles as related to development of conservation practices, investigation and measurement of water, snow surveys, the applications of the principles of range management to watershed conservation and their relationships to the control of soil erosion and water conservation.

490 (115) FOREST METEOROLOGY. 1 Q. W. 4. (4-0). Prerequisites: Physics 111-112, junior standing in the School of Forestry and consent of instructor. The basic physical factors affecting the behavior of fire, the measurement of weather elements, and the preparation and use of weather forecasts.

491 (156) FORESTRY SEMINAR. 1 Q. W. Credit variable. Prerequisite: senior standing. A general review of the newer developments in the various fields of forestry.

499 (151) FORESTRY PROBLEMS. 3 Q. Any quarter. Credit variable. Prerequisites: completion of basic undergraduate work and consent of instructor. Problems of management and research work. Problem will be identified for forestry majors as follows: Management, Silviculture, Soils, Economics, Forest Fire Control, Utilization, Engineering, Range Management, Wildlife Management, Conservation and Recreation, General.

FOR GRADUATES

520 (195) PUBLIC ADMINISTRATION. Extension course. W. Credit variable. Prerequisite: undergraduate degree from a college or university of recognized standing or consent of the Dean of the School of Forestry based on applicants' experience and competence. Intensive instruction in the fundamentals of sociology, psychology, speech, writing, business administration, and mathematics. Variable credit.

591-592 (192ab) RESEARCH METHODS. 2 Q. A. W. 3, 3. Students may enter any quarter. Prerequisites: at least one course in statistics or statistical elements of fore gastrointestinal system of instructor. (81) Scientific method, application of statistical methods to the design of experiments, research techniques, organization of research projects. (399) Analysis and presentation of research results.

590 (200) RESEARCH. Any quarter. Credit variable. Independent graduate research. The type of problem will be identified for forestry majors as follows: Silviculture, Soils, Economics, Protection, Utilization, Engineering, Range Management, Wildlife Management, Conservation and Protection or General.

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 guidebook and in which the specialized instruction is drawn from several fields. The curricula in Biological Sciences, Physical Sciences, Secretarial-Home Arts, Pre-Medical Science and Wildlife Technology are examples. It has also been found desirable to provide particular courses which overlap two or more fields; these described below."


125 (23) PHYSICAL SCIENCE FOR TEACHERS. 1 Q. W. 3. The physical science subjects are surveyed to provide the physical aspects of the universe. Three broad areas form the basis of the work: the structure and processes which affect matter, and the laws which govern matter.

126 BIOLOGICAL SCIENCE FOR TEACHERS. 1 Q. W. 3. Open only to students in the curriculum for the primary or secondary level, and via emphasis upon the sciences as related to the plant and animal kingdoms with special reference to the laws governing living things.


151-152-153 (15abc) INTRODUCTION TO THE HUMANITIES. 3 Q. W. 5, 5, 5. Students may enter any quarter. Those who have completed one or more college credits in literature may not receive credit in this course. A general survey of the field of the Humanities: Acquaintance with art and literature through the centuries from the Greeks to Americans, with the primary aim of understanding and appreciation. Given by the departments of English and Foreign Languages.

300 (100) CONSERVATION OF NATURAL AND HUMAN RESOURCES IN MONTANA. 1 Q. S. 3. Prerequisite: consent of instructor. The social need for improved conservation practices. A critical survey of climate, physiography, mineral resources, soil and water, as related to plant and animal production and human well­fare, and the development of principles underlying improved management of the natural resources. A survey of human and cultural resources. The methods of soil and water conservation practices. Primarily a teacher training course. Does not satisfy require­ments for a degree.

300 (100a) WILDLIFE SEMINAR. 1 Q. A. 2. Prerequisite: senior standing in Wildlife Technology or Forestry. Legal problems, policy and administrative problems.

GENERAL LITERATURE

These courses may be applied toward a major in the Department of English, except for 161. Courses numbered 161, 221, 241-243, 255, and 491-492-493 will be allowed toward a major in foreign languages.

161 (51) CLASSICAL MYTHOLOGY. (See Foreign Languages.)

221 (1) FOREIGN LITERATURES IN TRANSLATION. (See Foreign Languages.)

241-242-243 (17abc) THE DRAMA. (See English.)

344-345 THEORIES OF DRAMA. (See English.)

450 (153) STUDIES IN COMPARATIVE LITERATURE. (See Foreign Languages.)

451-452-453 (17abc) RENAISSANCE LITERATURE. (See Eng­lish.)

491-492-493 (169abc) THE LITERATURE OF ROMANTICISM. (See English.)

Geology Class
GEOGRAPHY is the science of the earth's surface by means of which geographers attempt to describe systematically the distribution of both physical and cultural features. Geographers interpret this distribution in relation to physical law and human motivation. The significance of this distribution is of prime importance in political affairs.

Physical geography includes an analysis of terrain, climate, natural vegetation, soils and water resources, while cultural geography interprets the distribution of population, settlements, and the location of economic activities and political features. These features exist on the earth's surface in contrasting associations and patterns. The regional method, as well as the function, use, and construction of maps, is essential for the student of geography.

Geography is basic to an understanding of the world in which we live and of the events which take place around us. Employment opportunities for those trained in geography exist in government, business and industry, and in the teaching profession.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN GEOGRAPHY. In addition to the general requirements for graduation listed earlier in the guidebook the following special requirements must be completed for the Bachelor of Arts Degree with a major in Geography:

A minimum of 50 credits in Geography including Geography 101, 211, 331, 332, 333, 334, 335, 340 and 400, Economics 201-202-203; Geography 101-102; History 251-252-253; Political Science 202-203; and Sociology 101 or Anthropology 120.

The following courses with the consent of the adviser may be counted toward a major in Geography: Botany 250 or 355, Business Administration 344, Economics 394 and 396, Geology 310, Mathematics 111, and Sociology 304.

A reading knowledge of five quarters (23-25 cr.) of a foreign language: French or German are strongly recommended unless the student intends to specialize in a part of the world where the use of some other language prevails.

CURRICULUM IN GEOGRAPHY

FOR UNDERGRADUATES AND GRADUATES

GEOLOGY is the study of the materials of which the earth is made, the processes by which it is changed, and the history of its development. The science aids in location and exploitation of minerals and other natural resources, and in the scientific utilization of soils, building materials, water, and other natural resources.

The Bachelor of Arts degree requires completion of a four-year curriculum in which, in addition to geology, basic sciences are important. The Master of Arts (or Master of Science) degree is also offered (see Graduate Studies). Instruction involves the use of collections of mineral, rock, and fossil specimens representing all the geologic ages, acquired from many parts of the world. Optical and chemical methods of study of earth materials make up an important part of the laboratory part of the course. Training in all courses. X-ray methods of study are used in some advanced courses. Thousands of geologic and topographic maps and numerous aerial photographs permit detailed study of geologically important areas. Nearly all courses are supplemented by study in the field. Training in methods of mapping and general field investigation under actual working conditions. Such studies are accompanied by theoretical work as well as courses in other basic sciences.

Petroleum companies employ the majority of geologists for the work of exploration. Geologic agencies such as the federal and state geological surveys, employ the largest group. Mining company staffs and the teaching professions include most of the remaining professional geologists. Railroads, large construction companies, and state highway departments employ geologists in increasing numbers. Some experienced geologists serve as professional consultants. Graduates have been successful in all of these fields of professional geology.
CURRICULUM IN GEOLOGY

**Freshman Year**

- English—101-105 (or 101-102-103) 4 4 4
- Chemistry 121-122 4 4
- Geology—110 4 4
- Health and P.E.—101-102-103 2 2 2
- R TC—101-102-103 2 2 2
- Group II or III courses 2 2 2

**Sophomore Year**

- Mathematics—151, 152, 153 4 4 4
- Geology—212, 220 2 2 2
- Zoology—104-105 4 4
- Geology—300 4 4
- Group II or III courses or electives 2 2 2

**Junior Year**

- Mathematics—111-112-113 or 221-222-223 5 5 5
- Geology—201-202-203 4 4 4
- Modern Language—201-202-203 3 3 3
- Geology—320 8 cr. (summer session) 8 8 8

**Senior Year**

- Geology—310 4 4 4
- Geology—325 4 4 4
- Geology—461 4 4 4
- Modern Language—213, 215 2 2 2
- Modern Language—211-212, 213-214 4 4 4
- Electives 9 9 9
- Military Science 6 6 6
- Health and Physical Education 6 6 6
- Electives 6 6 6

Total 138 cr.

**HIGH SCHOOL PREPARATION.** In addition to the general requirements, admission to the University, the student needs advanced algebra, physics, and chemistry. It is also recommended that high school preparation include advanced algebra, physics, and chemistry.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN GEOLOGY.** In addition to the general requirements, admission to the University, the student needs advanced algebra, physics, and chemistry. It is also recommended that high school preparation include advanced algebra, physics, and chemistry.

**Combination Geology and Law Program.** Students in this program complete all of the above requirements except Geology 310, 350, 391; Math 152, 153; Physics 111-112-113 or 211-222-233; Zoology 101-105; and English 394. Three quarters of Latin are recommended for part of the foreign language requirement.

The degree of Bachelor of Arts in geology is granted at the end of the first academic year in the School of Law, provided the student is certified as having completed the work of the first year of law and the satisfactory completion of the School of Law.

**Field Trip Expenses.** Students enrolled in Geology 130, 201-202, 220, 300, 305, 310, 330-331, and other courses which include field trips share equally the cost of transportation and insurance. Students should consult the University Business Office for a statement of expenses connected with Geology 220 Field Geology.

**FOR UNDERGRADUATES**

**101-102 (11ab) INTRODUCTION TO GEOLOGY.** 2 Q. A. W. (Su., 191 ab) The minerals, rocks, and structure of the earth's crust and the dynamic processes, volcanism, diastrophism, and graduation which shape the earth's landscape. (120) the origin of the earth and its development through geologic time, with emphasis on changes of land and sea and their relation to the evolution of life. Not open to geology majors.

**110 GENERAL GEOLOGY.** 1 Q. A. 5 (3-4). Open to non-majors with consent of instructor. Minerals, rocks, and structure of the earth's crust and the dynamic processes, volcanism, diastrophism, and graduation which shape the earth's landscape. Credit not allowed for both 101-102 and 110.

**120 INTERPRETATION OF AERIAL PHOTOS AND GEOLOGIC MAPS.** 2 Q. A. 5 (3-4). Prerequisite: Geology 110. Interpretation of aerial photos and geologic maps, including construction of cross-sections, profiles; introduction to geologic illustration, photogrammetry, and photography.

**130 (25) FIELD METHODS.** 1 Q. S. 3 (1-3) Prerequisite: Geology 110, 120. Applied geologic map and aerial photo interpretation, and field techniques including plane table mapping, use of Brunton compass, altimeter, Jacob staff, and chaining; the measurement and description of stratigraphic sections. Some all day field trips on Saturdays chiefly in May.

**131 (25) ANTHROPOLOGICAL GEOLOGY.** 2 Q. A. W. 201-202-203 (22abc) ANTHROPOLOGICAL GEOLOGY. 3 Q. A., W. S. 4, 4, 4, 4 (3-2) Prerequisite: Geology 110. Zoology 104-105 recommended. (201) The origin of the earth, Precambrian and early Paleozoic history; (202) Tertiary and Quaternary history; Stratigraphic methods and principles of chronological correlation. (203) Terrestrial, Tertiary, and Quaternary history; Stratigraphic methods and principles of chronological correlation. Some all day field trips throughout the course. Laboratories include map, fossil, library, and field exercises.

**211-212 (24ab) MINERALOGY.** 2 Q. A. W. 4, 4, 4, 4 (3-2) Prerequisite: Chemistry 121 or concurrent registration. The elements of mineralogy and the classification and description of common minerals by physical and chemical properties, with special emphasis on the ore and rock forming minerals.

**213 (25) PETROLOGY.** 1 Q. W. 3, 3, 3 Prerequisite: Geology 212. The common rocks; their mineral composition and physical properties, classification, identification in the field, origin and structural features.

**FOR UNDERGRADUATES AND GRADUATES**

**300 (S112) GEOLOGY OF MONTANA.** 1 Q. Su. only. 3 (2-3) Prerequisite: consent of instructor. Primarily for teachers of natural science. Selection of oil fields and metallic and non-metallic mineral deposits in Montana and vicinity, with field trips to some of them. Not applicable by geology majors toward a degree.

**301 (S135) MOUNTAIN METEOROLOGY.** 1 Q. W. 3, 3, 3 Prerequisite: Geology 203, 220. The topographic features that comprise the landscape, and the origin, development, and classification.

**313 (129) GROUND WATER.** 1 Q. W. 3, 3, 3 Prerequisite: Geology 203, 220, Physics 113. The geologic and hydrological aspects of ground water, with emphasis on conditions in Montana and vicinity.

**320 (S130) FIELD GEOLOGY.** 1 Q. Su. only. 8 (5-3) days per week for 6 weeks in each field. Prerequisites: Geology 120, 200, 220. Field studies given in conjunction with Indiana University Geology Field School. Students must register for their field station near Whitehall, Montana. Primarily detailed geological mapping must be completed by April 1.

**360 (137) ADVANCED GEOLOGIC PROBLEMS.** 1 Q. Any quarter. 2-5 Prerequisite: 30 cr. in geology and consent of instructor. Supervised investigation in any of the phases of geologic study in which the student has interest and original thought.

**361-362 (121ab) STRUCTURAL GEOLOGY.** 2 Q. A. W. 5, 5, 5 Prerequisite: Geology 205, 220; Mathematics 153; Physics 113 or 223. The structural features of the earth's crust and their analysis by means of geometric and stereographic projections. Some all day field trips in the state of Montana.

**365-366 (101ab) METALLIC MINERAL DEPOSITS.** 2 Q. A. W. 4, 4 Prerequisite: Geology 205, 220; Mathematics 153; Physics 113 or 223. The structural features of the earth's crust and their analysis by means of geometric and stereographic projections. Some all day field trips in the state of Montana.

**367 (123) OPTICAL MINERALOGY.** 1 Q. A. 4 (3-4) Prerequisite: Geology 220, Physics 113 or 222, and Mathematics 101. The use of the polarizing microscope in the study of optical phenomena observed with the microscope; the application of these phenomena in identifying mineral fragments and minerals in thin section.

**368-369 (124ab) PETROGRAPHY.** 2 Q. W. 4, 4, 4, 4 Prerequisite: Geology 230, 235. The optical examination and identification in thin section of igneous minerals and rocks by the polarizing microscope. (425) similarly treats metamorphic and sedimentary rocks. Advanced petrological considerations are included in both quarters.

**370 (132) PRINCIPLES OF STRATIGRAPHY.** 1 Q. A. 2 (2-3) Prerequisite: Geology 130, 331. Geology 410-411 recommended. Interpretation of the environment of sea, tectonic controls, and facies problem of correlation and correlation in paleogeography and paleoclimatography. Includes field work.

**380 (130) MINERALOGY AND OIL.** 1 Q. S. 3 (3-0) Prerequisite: Geology 331 or consent of instructor. Theories of origin, of stratigraphic and structural controls of occurrence, and of the general nature of some of the problems associated with mineral deposits.

**440 INTRODUCTION TO GEOGRAPHY.** 1 Q. S. 3 (3-0) Prerequisite: Geology 113 or 223, Mathematics 153 or concurrent registration. Geographical problems from a physiographic standpoint, including climatic problems, the map of the state of Montana. Primarily for teachers of natural science.

**450 X-RAY ANALYSIS.** 1 Q. A. 2 (3-2) Prerequisite: Physics 223. Interpretation of the x-ray pattern in terms of the identification of polycrystalline materials. Emphasis on Debye-Scherrer powder method and single crystal methods by means of the Weissenberg and other methods.

**460 MARINE GEOLOGY.** 1 Q. W. 4 (3-2) Prerequisite: Geology 110. Zoology 104, Physical, chemical, and biological aspects of the ocean and its floor.

**480 HISTORY OF GEOLOGY.** 1 Q. A. 1 (2-0) Prerequisite: 30 credits in Geology. An analysis of the development of some of the
fundamental concepts in Geology. History of the major branches of Geology.

FOR GRADUATES

500 (207) SEDIMENTATION, 1 Q. A. 4 (3-3). Prerequisites: Geology 331. Classification of sedimentary rocks according to their structural environment and features, with special reference to geologic time of deposition and to the origin of sediments, their transportation, deposition, facies types, and other processes that affect their origin. Offered odd numbered years.

505 (208) RESEARCH Any quarter. (2-4). Directed research in stratigraphy paleontology, mineralogy, petrology, mineral deposits, geochemistry, sedimentation, tectonic analysis, and other phases of Geology. Offered even numbered years.

699 (299) THESIS. Any quarter. Credit variable. Total credit allowed: 15.

GRADUATE SCHOOL.

The following advanced degrees are conferred by the University:

Master of Arts—Art, Bacteriology, Botany, Chemistry, Clinical Psychology, Economics, English, Foreign Languages, Geology, History, Philosophy, Physics, Political Science, Psychology, Sociology, and Zoology.

Master of Science—Bacteriology, Botany, Chemistry, Geology, Mathematics, Physics, and Zoology.

Master of Science in Business Administration.

Master of Science in Forestry.

Master of Science in Pharmacy.

Master of Science (combined major in Botany and Forestry).

Master of Arts in Education.

Master of Arts in Journalism.

Master of Science in Wildlife Technology.

Master of Science in Wildlife Management.

Master of Education.

Master of Forestry.

Master of Music.

Applied Music

Composition

Music Education

Doctor of Education.

GENERAL REQUIREMENTS

ADMISSION. A student who is a graduate of an accredited college or university may apply for admission to the Graduate School. To apply, a student must submit a completed application blank and two official transcripts of all university work, and two letters of recommendation. Application blanks must be secured from the Registrar or from the Dean of the Graduate School.

Regular graduate standing is granted to students working toward the Master's degree who have completed with a grade of B or better the following requirements: 15 credits in courses numbered 300 and above, in the major field of study. These credits must have been earned at Montana State University and at least one of these credits must be transferred from another accredited institution. The student must have satisfactorily completed all prerequisites for the courses in which grades of B or better were earned. The student must have satisfactory grades in all prerequisite courses. The student must be a graduate of an accredited college or university and must have completed a minimum of 15 credits in courses numbered 300 and above in the major field of study.

For admission to candidacy for the degree, the student must file in the Graduate School an application for candidacy for the degree at the beginning of his second quarter. At this time, or at least two quarters prior to the conferring of the degree, the student must have completed all prerequisites for admission to candidacy in triplicate and submit a tentative title for his thesis or professional paper. The student must be a graduate of an accredited college or university and must have completed a minimum of 15 credits in courses numbered 300 and above in the major field of study. The student must have satisfactory grades in all prerequisite courses. The student must be a graduate of an accredited college or university and must have completed a minimum of 15 credits in courses numbered 300 and above in the major field of study.

The Graduate Record Examination is required of all students starting in the Graduate School. This examination is given at specified times during the year. An undergraduate of senior standing who does not have the minimum number of undergraduate credits to meet the requirements for the Bachelor's degree may enroll in courses for graduate credit. A senior student who has completed at least 15 credits in courses numbered below C, but still lacks as many as 16 in his major field may enroll in courses for graduate credit. All requests for such enrollment must be submitted in writing to and approved by the major advisor and the Dean of the Graduate School prior to registration.

At the discretion of the department or school, qualifying examinations may be administered to aid in determining the applicant's preparation.

The Graduate Record Examination is required of all students starting in the Graduate School. This examination is given at specified times during the year. An undergraduate of senior standing who does not have the minimum number of undergraduate credits to meet the requirements for the Bachelor's degree may enroll in courses for graduate credit. A senior student who has completed at least 15 credits in courses numbered below C, but still lacks as many as 16 in his major field may enroll in courses for graduate credit. All requests for such enrollment must be submitted in writing to and approved by the major advisor and the Dean of the Graduate School prior to registration.

At the discretion of the department or school, qualifying examinations may be administered to aid in determining the applicant's preparation.

Members of the Faculty of Montana State University above the rank of Instructor may also be honorary members of this University. This does not prevent such members taking advanced courses for transfer to other institutions.

COURSES. All courses numbered over 499 carry graduate credit, as do those in the 300 and 400 series which have been approved by the Graduate Committee.

GRADES. An average of B must be obtained in all courses taken for graduate credit. A maximum of 8 credits of C or D work may be reported in one program. Registration for each quarter's work the student should consult with his advisor concerning his program for that quarter. The program must be approved by his advisor and the Dean of the Graduate School.

STUDY LOADS. Fifteen credits of graduate work per quarter are considered a normal study load. The summer quarter the normal credit load is 8 credits for a five-week term; 15 credits for the session. The maximum credit load which may be applied toward a degree in the five-week term is nine credits and in the full summer session is 16 credits.

Regular full-time employees of the University may carry a maximum of 12 credits per quarter upon approval of the program by the Dean of the School of Education. The Master of Arts in Education and the Doctor of Education.

REGISTRATION. At the time of registration for each quarter's program for that quarter. The program must be approved by the Dean of the School of Education. The Master of Arts in Education and the Doctor of Education.

TRANSFER OF CREDIT. A student may transfer up to 12 graduate credits (but no residence) toward the fulfillment of the credit requirement for the degree. Students transferring from Montana State College who have one quarter of graduate study in residence at that institution will be required to fulfill only two-thirds of the minimum residence requirement, which must include one ten-week quarter.

TIME LIMIT FOR DEGREE. All requirements for the degree must be completed within a period of 4 years. A maximum of ten quarter credits of graduate work, and not to exceed one course, may be allowed to count toward the completion of the residence requirement for the degree. Students transferring from Montana State College are allowed to transfer a maximum of 15 graduate credits.

EXAMINATIONS. Each candidate for a degree must pass examinations, which may be oral or written, or both, covering his field of study. The examinations must be completed at least one week before the degree is to be granted.

FOREIGN LANGUAGE REQUIREMENT. A foreign language is required of all candidates for the Master of Arts and Master of Science degrees in the College of Arts and Sciences and for the Master of Science in Business Administration. Students from Montana State College are allowed to transfer a maximum of 15 graduate credits.

ADMISSION TO CANDIDACY. For the Master's degree, if the applicant has an A average in courses registered for (B average in courses registered for) during his first quarter of residence, he may be admitted to candidacy for the degree at the end of the first quarter. At the time, or at least two quarters prior to the conferring of the degree, the student must have completed all prerequisites for admission to candidacy in triplicate and submit a tentative title for his thesis or professional paper. Not over 10 credits in course 699 may be applied toward the Master's degree.

ABSTRACT. Each candidate for a degree is required to prepare an abstract which is submitted to the Dean of the Graduate School by the last day of the quarter. This abstract must be approved by the advisor and submitted to the Dean of the Graduate School by the last day of the quarter. This abstract must be approved by the advisor and submitted to the Dean of the Graduate School by the last day of the quarter. This abstract must be approved by the advisor and submitted to the Dean of the Graduate School by the last day of the quarter.
MASTER OF ARTS AND MASTER OF SCIENCE DEGREES.

To receive either of these degrees the candidate must present evidence of intensive study and investigation in his field of special interest.

A minimum of two-thirds of the 48 credits required for the Master's degree must be in the major field. The remainder of the work may be in studies approved by the Dean of the Graduate School.

The subject of the thesis must be approved by the major professor and by the Dean of the Graduate School. By the end of the fifth week of the quarter in which the degree is to be conferred the candidate must submit an unbound temporary draft of the thesis as approved by the advisor. This copy is to be submitted to the examining committee and by any other person called upon, in order to suggest revisions before final typing. Final approval of or a minor in the thesis is subject to the approval of the committee. This committee is appointed by the Dean of the School in consultation with the major professor, and must include at least two faculty members in the major field.

Three bound copies of the approved thesis must be submitted to the Dean of the Graduate School.

Examinations covering the student's major field of work and the content of his thesis will be conducted by a committee appointed by the Dean of the Graduate School. These examinations must be completed one week before the degree is granted.

SPECIAL REQUIREMENTS

MASTER OF SCIENCE IN BUSINESS ADMINISTRATION.

Candidates for this degree must complete 45 credits of graduate work including not over 15 thesis credits. At least 50% of the credits taken in any other field than mathematics must be in courses numbered over 500. Bus. Ad. 541-542-543 is required of all candidates. The following courses or their equivalents are required for admission to graduate work in Business Administration:

- 300 credits in the Biological Sciences
- A minimum of 10 of the 17 allied sciences
- Research and thesis, 6-9 credits

A minimum of 10 credits of cognate work must be included in the student's program. Such cognate work may not include courses in carry over from the Educational Psychology and Administration of the College of Education and the Graduate School, and may not include any course that is primarily concerned with techniques or training in specific skills.

MASTER OF EDUCATION.

The Master of Education degree must have completed two years of satisfactory teaching experience. This is in addition to the requirement of a minimum of 15 residence credits of graduate work in Education. The total number of credits in Education taken as undergraduate and graduate credit shall not be less than 54.

Two programs leading to the Master of Education degree are available:

A. Master of Education With Professional Paper. Candidates for this degree must complete 45 credits of graduate work, including credit in Methods of Educational Research (Education 585 or equivalent), and a minimum of 10 credits of cognate work based upon a minimum of three courses (See requirements for Master of Arts in Education).

The candidate must prepare a professional paper which represents the equivalent of a three-credit course. This paper should involve a survey of the local situation, an analytical or teaching interest and should comply in mechanical features with those required in an acceptable thesis. Two copies of this paper must be bound and submitted to the Dean of the School of Education.

Candidates electing this program leading to the Master of Education degree must take examinations covering the field of education and the professional paper. Arrangements for this examination will be made by the Dean of the School of Education.

B. Master of Education Without Professional Paper. Candidates who elect this course of study will need to complete a total of 45 credits of professional work. This will include at least 10 credits of Education credits of cognate work. The student must take examinations covering the field of education—such examination to be arranged by the Dean of the School of Education.

MASTER OF ARTS OR MASTER OF SCIENCE IN TEACHING.

The degrees will be designated as Master of Arts in Teaching, or Master of Science in Teaching. To the major field:

1. A teaching certificate and an undergraduate major or teaching major in a teaching field.
2. Approval of the program by a committee composed of two staff members from the major field and one staff member from the School of Education.

Specific requirements for the degree for a major in the Biological Sciences:

OPTION I

A. 45 graduate credits with a maximum of 17 outside the Biological Sciences.
B. A minimum of 10 of the 17 allied sciences.
C. Research and thesis, 6-9 credits
D. Final oral examination required (written examination may be required).

OPTION II

A. 54 graduate credits divided as follows:
   1. 35 in the Biological Sciences
   2. 10 in allied sciences
   3. 9 credits electives
   B. Final oral and written comprehensive examinations required.
ADVANCEMENT TO CANDIDACY. At least two weeks before the comprehensive examination, the student should be advanced to candidacy for the doctor's degree. Application forms may be secured in the Graduate Office. Upon successful completion of the comprehensive examination, the recommendation of the advisory committee, and the approval of the Graduate Dean, the student may be advanced to candidacy.

DISSERTATION. The candidate must submit a dissertation which shows evidence of competence in independent investigation. The dissertation must not be a rehash of existing knowledge or a contribution to knowledge. In either case it must show mastery of the subject matter by the candidate. The dissertation must consist of fifteen to thirty credits may be allowed for the dissertation. The candidate will write a thesis which will be evaluated by the Graduate Dean of the Graduate School and must be presented to the Dean of the Graduate School at least four weeks before the date of the final oral examination. Two copies of an abstract of the dissertation will be included with the thesis. The final oral examination shall be announced one week ahead of its scheduled time and shall be open to all members of the faculty.

FINAL EXAMINATION. A final oral examination dealing primarily with a dissertation and its relationship to the field of study shall be conducted by the advisory committee and such other members of the faculty as may be designated by the Dean of the Graduate School. The oral examination may be delayed for not more than ten days before the commencement at which the degree is to be conferred.

HEALTH AND PHYSICAL EDUCATION deals primarily with recreation and muscle activity to provide individuals with wholesome psychomotor and organic development. The program at the University is designed to provide (1) instruction in a variety of recreational skills for the freshman and sophomore men and women, (2) the opportunity for student specialization in coaching and competition with one another in such activities as archery, badminton, basketball, bowling, golf, horseshoes, skiing, swimming, tennis, touch football, softball, and volleyball, and (3) preparation for teaching.

Four years are required for a Bachelor of Arts degree for those who wish to specialize in physical education. The Master of Arts degree is also offered (see Graduate Studies). Undergraduate courses provide both practice and theory for the student. Activity courses offer instruction in fundamentals of teaching activities involving team games, individual and dual sports, tumbling and apparatus stunts, swimming, and forms of dance. Theory courses include planning and administration of physical education programs and the use of sound teaching techniques. The curriculum includes work in corrective physical education and physical therapy, dealing with the rehabilitation of crippled persons and the correction of orthopedic defects; students may prepare for a career as orthopedic or physical therapists. The health education phase of the program deals with personal as well as school and community health problems and the contributions of various health agencies toward the betterment of human health and welfare. Recreational leadership courses offer training in handicraft and recreational skills for leaders of youth groups. All levels of American Red Cross certification are offered in this Department: Bachelor of Arts, which requires five quarters of a foreign language, and Bachelor of Science, which requires five courses in foreign languages. The Bachelor of Science degree will offer the following courses in place of a foreign language: French and French Civilization 111, and 8 credits from Sociology 101, 102, 204, 355, 386, 387, and 402. Requirements for both degrees are identical in all other aspects. In addition to the requirements earlier in the guidebook, the following special requirements must be completed by those desiring the Bachelor of Arts degree in Physical Education in addition to Health and Physical Education 115-116, 117, 215-216, 217; Education 335, 372; General 131-132; and Zoology 402. Pre-physical therapy students take Zoology 101 and 5 credits in a physical science instead of General 131-132.

The following courses must be completed by all students: Health and Physical Education 198, 199, 236, 250, 325, 337, 355, 378, 380, 386, 395.

Women students also take: Health and Physical Education 231, 232, 301, 302, 324-325, 375, and 460.

Men students also take: Health and Physical Education 210, 240, 310, 321-322, and four credits from 211-212, 221-222, 331-332.

FOR UNDERGRADUATES
101-102-103 (11abc), 201-202-203 (12abc) FRESHMAN AND SOPHOMORE PHYSICAL EDUCATION. 6 Q. A. W. 3, 1, 1. Instruction in swimming, basketball, and physical fitness. 1st. advanced techniques for Team Sports, Individual and Dual Sports, Combined, and Individual and Dual Sports. 2nd. Advanced techniques for Team Sports, Individual and Dual Sports, Combined, and Individual and Dual Sports. 3rd. The examination will be held during the first five days of the fall semester. This work will be held until the University swimming test has been passed. A student may repeat a class in beginning skills of any sport in which he has received a passing grade. 6 credits in these courses may be applied to meet the graduation requirement, and at least one credit per quarter must be earned in this requirement.
199 (19) INTRODUCTION TO PHYSICAL EDUCATION. 1 Q. W. Su., even numbered years. 3. Prerequisite: major or minor in Physical Education or recommendation of advisor. Principles and methods of Physical Education, professional opportunities, relationships with other fields and communication in general. Orientation for prospective majors and minors.
199 (32) FIRST AID. 1 Q. A. W. Su., odd numbered years. 2. Recreational and remedial first aid. Red Cross certification may be secured upon completion of the course.
200 (55b) ADVANCED COACHING TECHNIQUES. 1 Q. Su. only. 1 week intensive practical and theoretical coaching football and basketball and in athletic training. (Special coaching school at school)
210 (62ab) COACHING OF FOOTBALL. 1 Q. W. 3.
211 THEORY OF OFFICIATING FOOTBALL. 1 Q. S. 1. Principles, rules and techniques.
212 FOOTBALL OFFICIALATING FIELD WORK. 1 Q. A. 1. Prerequisite: H&E 211. Practical experience.
220 (59) COACHING OF BASEBALL. 1 Q. W. 3.
221 TeACHING OF SOFTBALL AND BASEBALL 1 Q. W. 1. Principles, rules and techniques.
222 SOFTBALL AND BASEBALL OFFICIALATING FIELD WORK. 1 Q. S. 1. Prerequisite: 211. Practical experience.
233 (36) TECHNIQUES OF TEACHING SWIMMING. 1 Q. S. 2.
234 (37) PRACTICAL EXPERIENCE IN LIFE-SAVING AND WATER SAFETY. 1 Q. W. 2. Methods of teaching and use of tests for classifying students.
235 (111) WATER SAFETY AND LIFE SAVING. 1 Q. S. Su., odd numbered years. 1 week. Red Cross Senior Life Saving Course. Prerequisite: H&E 233. Certification. The course is open to students who have not taken the course before or who wish to take it again.
236 (40) CARE AND PREVENTION OF ATHLETIC INJURIES. 1 Q. W. Su., even numbered years. 2. Prerequisites: H&E 231 and knowledge of common athletic injuries and their causes, prevention and cure. Practical work in bandaging and wrapping.
237 (50) HUMAN ANATOMY. 1 Q. A. Su., odd numbered years. 5. The systems of the body and the structure of organs composing these systems.
238 (63a) TEACHING OF TEAM SPORTS FOR WOMEN. 1 Q. W. 2. Methods and materials.
239 (63b) TEACHING OF INDIVIDUAL-DUAL SPORTS FOR WOMEN. 1 Q. S. 2. Methods and materials.
243 (45c) METHODS AND MATERIALS IN FOLK DANCING AND TAP DANCING. 1 Q. A. 2.
244 (45b) METHODS AND MATERIALS IN MODERN DANCE. 1 Q. A. 2.
245 (45c) METHODS AND MATERIALS IN FOLK DANCING AND SQUARE DANCING. 1 Q. S. 2.
246 (135) METHODS OF TEACHING PHYSICAL EDUCATION. 1 Q. A. Su., even numbered years. 3. Prerequisite: H&E 232. 1/2 term. Required of all teaching majors and minors for three quarters. No other methods course suitable for junior and senior high school programs. Demonstrations and practice in teaching dance,touch football, basketball, bowling, golf, horseshoes, skiing, swimming, tennis, wrestling, and football. The course is not offered in the elementary schools.
247 (136) METHODS OF TEACHING PHYSICAL EDUCATION IN THE ELEMENTARY SCHOOLS. 1 Q. A. S. Su. 3. Prerequisite: major in elementary education. Principles and foundations of elementary school
physical education; theory and practice in selecting and teaching activities for children in grades one through eight, with special attention given to problems of the grade school teacher. Not open to students who have received credit for H&PE 106.

352 (170a) RECREATION LEADERSHIP (SOCIAL RECREATION). 4 Q. S. Prerequisite: Sociology 101, Philosophy of social recreation, theory and practice of group leadership and recreation services, philosophy of group recreational activities. Credit not allowed for this and the identical course in Sociology.

363 (170c) RECREATION LEADERSHIP (CAMP LEADERSHIP). 3 Q. S. Prerequisite: Sociology 101. Recreation leadership and planning outdoors activities, theory and practice of group leadership and recreation services, philosophy of group recreational activities. Credit not allowed for this and the identical course in Sociology.

365 (150) ORGANIZATION AND ADMINISTRATION. 1 Q. W. S. Prerequisite: H&PE 335 or equivalent. Organizational sources and activities. Forces, interests, and resources involved in providing recreation and leisure services. Credit not allowed for this and the identical course in Sociology.

366 (151) CURRICULUM CONSTRUCTION. 1 Q. W. S. Prerequisite: H&PE 336 or equivalent. Curricular organization and implementation, methods of conducting, and practical working supervision of school and community recreation programs and projects.

371 (S145) PERSONAL PROBLEMS IN PHYSICAL EDUCATION. 1 Q. Su. Prerequisite: One year of all college majors and minors in Physical Education. No credit to open students who have received credit for H&PE 335.

375 (203) KINESIOLOGY. 3 Q. W. S. Prerequisite: H&PE 336 or equivalent. The muscles and joints of the body. Bodily movements, joint mechanics, and the functioning of muscles in relation to physical education and activities of daily life.

380 (121) APPLIED ANATOMY. 1 Q. W. Su. Prerequisite: H&PE 336. An advanced study of the muscle and joint mechanics of the body.

385 (141) PREVENTIVE AND CORRECTIVE PHYSICAL EDUCATION. 1 Q. W. S. Prerequisite: H&PE 336. Methods of preventing and detecting the more common physical defects which are related to the physical education program, and consideration of the possible follow-up programs which may be advisable in these cases.

386 (152) INTRODUCTION TO PHYSICAL THERAPY 1 Q. S. Prerequisite: H&PE 336. An advanced study of the muscle and joint mechanics of the body.

391 (165) TESTING IN PHYSICAL EDUCATION. 3 Q. A. S. Prerequisite: H&PE 336. An advanced study of the muscle and joint mechanics of the body.

395 (150) ORGANIZATION AND ADMINISTRATION. 1 Q. W. S. Prerequisite: H&PE 335 or equivalent. Organizational sources and activities. Forces, interests, and resources involved in providing recreation and leisure services. Credit not allowed for this and the identical course in Sociology.

396 (151) CURRICULUM CONSTRUCTION. 1 Q. W. S. Prerequisite: H&PE 336 or equivalent. Curricular organization and implementation, methods of conducting, and practical working supervision of school and community recreation programs and projects.

HISTORY and Political Science are combined in a single department for administrative purposes, but a student may earn a degree in either field or in a combination of the two. A core knowledge of both is expected of every depart­}

450 (201) RESEARCH. Any quarter. 2. The application of scientific methods in Historical, Physical Education and Recreation. Practi­

tice in employing research techniques in planning and developing individual projects.

460 (202) ADVANCED TESTS AND MEASUREMENTS. 1 Q. W. Su. Prerequisite: H&PE 455 or equivalent. Specific test for evaluation of physical education and social outcomes. Practice in construction and application of tests.

470 (299) THESIS. Any quarter. Credit variable. Total credit allowed: 15.

HISTORY and Political Science. History as taught at Montana State University is not a useless catalog of names and dates. It is the study of man's past activities with the hope that lessons may be learned which will be applicable in solving problems of the present era. For the student who is interested in the basis of education rather than training for some particular occupation, this department offers a program of instruction calculated to provide knowledge and understanding of the backgrounds and the possibilities of present national and world situations.

The department offers the Master of Arts degree in History involving the completion of an acceptable thesis based on original research.

Occupationally this department helps to prepare men and women for either the domestic or the foreign service of the federal government and for positions in state and local government. If not as clerks, court, journalists, and businessmen with bases for the pursuit of their chosen occupations, but also furnishes knowledge and perspective for intelligent leadership in community action.

Recommended graduates of the department are accepted for advanced work either as lawyers, archivists, writers, or college administrators.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN HISTORY. In addition to the general requirements for graduation, the following special requirements must be completed for the Bachelor of Arts degree with a major in History. A minimum of 45 credits in History is required, with the following: History 241, 242, and 243 and History 101-102. History majors must elect a minor of 15 credits in American or 15 credits in European History.

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 18 credits must be selected from courses numbered over 300 including either History 491 or Political Science 491.

Either the completion of five quarters of a foreign language or the demonstration of a satisfactory reading knowledge of historical, legal, 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 each in two languages.

In the final year in the Department, each major must pass a Senior Comprehensive Examination.

With permission of the Chairman of the Department, majors may offer credit earned in Economics 365, 366-368, 369, and 370, in Material Science 390 in partial fulfillment of the prerequisites for a degree.

To earn a Bachelor of Arts degree with a major in History and Political Science together with a Bachelor of Laws degree in six academic years the student must fulfill the curriculum of the School of Law jointly propose a more rigid program than is ordinarily re­
FOR UNDERGRADUATES

101-102-103 (12ab) THE DEVELOPMENT OF WESTERN CIVILIZATION. 3 Q. A, W. 3, 3. Students may enter any quarter. (101) Ancient world through the Medieval period. Greek and Roman civilization and political thought from prehistoric times to 1400; (102) Early Modern Age to 1830. Age of Absolutism; Period of enlightenment; European reaction to Industrial Revolution; Congress of Vienna and Age of Restoration; (103) 1830 to present: Growth of liberalism, nationalism, socialism, imperialism, modern European state systems. (207-208) MODERN EUROPE. 2 Q. A, W, 3, 3. Students may enter either quarter. (207) The political, economic, and social development of Europe from 1300 to the present time will be paid to cultural and intellectual developments.

219 (34) RENAISSANCE AND REFORMATION. 1 Q. S. 3. The political, economic, and social development of Europe from 1300 until the outbreak of the French Revolution.

215-216-217 (30b) EUROPE IN THE 19TH CENTURY. 2 Q. A, W, Su. 3, 3. (215) The political, economic and social development of Europe from 1815-1870; (216) Continuation of 215 to the fourteenth century. Some attention will be paid to cultural, intellectual and political developments.

3. P rerequisite: a college course in Modern European history.

314-315-316 (36b) MODERN FRANCE AND SPAIN. 1 Q. S. 4. Students may enter any quarter. (314) United States History, 1600-1815: Colonial beginnings and development of modern England; the growth of Empire. (315) United States History, 1815-1890: Capitalism and constitutional changes; The Progress of the World: The American Revolution and the War of 1812; (316) United States History, 1890-1900: The national economic system; the sectional conflict; Federalism and practical politics; American and European contributions to international and economic relations; the growth of the Canadian West.

5. Prerequisite: History 241-242. The economic and social background of the development of modern England; Anglo-French rivalry in America; the British colonial system and development of modern England; the growth of the Canadian West.

101-102-103 (12ab) THE DEVELOPMENT OF WESTERN CIVILIZATION. 3 Q. A, W. 3, 3. Students may enter any quarter. (101) Ancient world through the Medieval period. Greek and Roman civilization and political thought from prehistoric times to 1400; (102) Early Modern Age to 1830. Age of Absolutism; Period of enlightenment; European reaction to Industrial Revolution; Congress of Vienna and Age of Restoration; (103) 1830 to present: Growth of liberalism, nationalism, socialism, imperialism, modern European state systems. (207-208) MODERN EUROPE. 2 Q. A, W, 3, 3. Students may enter either quarter. (207) The political, economic, and social development of Europe from 1300 to the present time will be paid to cultural and intellectual developments.

219 (34) RENAISSANCE AND REFORMATION. 1 Q. S. 3. The political, economic, and social development of Europe from 1300 until the outbreak of the French Revolution.

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314-315-316 (36b) MODERN FRANCE AND SPAIN. 1 Q. S. 4. Students may enter any quarter. (314) United States History, 1600-1815: Colonial beginnings and development of modern England; the growth of Empire. (315) United States History, 1815-1890: Capitalism and constitutional changes; The Progress of the World: The American Revolution and the War of 1812; (316) United States History, 1890-1900: The national economic system; the sectional conflict; Federalism and practical politics; American and European contributions to international and economic relations; the growth of the Canadian West.

5. Prerequisite: History 241-242. The economic and social background of the development of modern England; Anglo-French rivalry in America; the British colonial system and development of modern England; the growth of the Canadian West.

101-102-103 (12ab) THE DEVELOPMENT OF WESTERN CIVILIZATION. 3 Q. A, W. 3, 3. Students may enter any quarter. (101) Ancient world through the Medieval period. Greek and Roman civilization and political thought from prehistoric times to 1400; (102) Early Modern Age to 1830. Age of Absolutism; Period of enlightenment; European reaction to Industrial Revolution; Congress of Vienna and Age of Restoration; (103) 1830 to present: Growth of liberalism, nationalism, socialism, imperialism, modern European state systems. (207-208) MODERN EUROPE. 2 Q. A, W, 3, 3. Students may enter either quarter. (207) The political, economic, and social development of Europe from 1300 to the present time will be paid to cultural and intellectual developments.

219 (34) RENAISSANCE AND REFORMATION. 1 Q. S. 3. The political, economic, and social development of Europe from 1300 until the outbreak of the French Revolution.

215-216-217 (30b) EUROPE IN THE 19TH CENTURY. 2 Q. A, W, Su. 3, 3. (215) The political, economic and social development of Europe from 1815-1870; (216) Continuation of 215 to the fourteenth century. Some attention will be paid to cultural, intellectual and political developments.

3. P rerequisite: a college course in Modern European history.

314-315-316 (36b) MODERN FRANCE AND SPAIN. 1 Q. S. 4. Students may enter any quarter. (314) United States History, 1600-1815: Colonial beginnings and development of modern England; the growth of Empire. (315) United States History, 1815-1890: Capitalism and constitutional changes; The Progress of the World: The American Revolution and the War of 1812; (316) United States History, 1890-1900: The national economic system; the sectional conflict; Federalism and practical politics; American and European contributions to international and economic relations; the growth of the Canadian West.

5. Prerequisite: History 241-242. The economic and social background of the development of modern England; Anglo-French rivalry in America; the British colonial system and development of modern England; the growth of the Canadian West.

101-102-103 (12ab) THE DEVELOPMENT OF WESTERN CIVILIZATION. 3 Q. A, W. 3, 3. Students may enter any quarter. (101) Ancient world through the Medieval period. Greek and Roman civilization and political thought from prehistoric times to 1400; (102) Early Modern Age to 1830. Age of Absolutism; Period of enlightenment; European reaction to Industrial Revolution; Congress of Vienna and Age of Restoration; (103) 1830 to present: Growth of liberalism, nationalism, socialism, imperialism, modern European state systems. (207-208) MODERN EUROPE. 2 Q. A, W, 3, 3. Students may enter either quarter. (207) The political, economic, and social development of Europe from 1300 to the present time will be paid to cultural and intellectual developments.

219 (34) RENAISSANCE AND REFORMATION. 1 Q. S. 3. The political, economic, and social development of Europe from 1300 until the outbreak of the French Revolution.

215-216-217 (30b) EUROPE IN THE 19TH CENTURY. 2 Q. A, W, Su. 3, 3. (215) The political, economic and social development of Europe from 1815-1870; (216) Continuation of 215 to the fourteenth century. Some attention will be paid to cultural, intellectual and political developments.

3. P rerequisite: a college course in Modern European history.

314-315-316 (36b) MODERN FRANCE AND SPAIN. 1 Q. S. 4. Students may enter any quarter. (314) United States History, 1600-1815: Colonial beginnings and development of modern England; the growth of Empire. (315) United States History, 1815-1890: Capitalism and constitutional changes; The Progress of the World: The American Revolution and the War of 1812; (316) United States History, 1890-1900: The national economic system; the sectional conflict; Federalism and practical politics; American and European contributions to international and economic relations; the growth of the Canadian West.

5. Prerequisite: History 241-242. The economic and social background of the development of modern England; Anglo-French rivalry in America; the British colonial system and development of modern England; the growth of the Canadian West.
HOME ECONOMICS curricula are designed to provide opportunities for broad individual growth, social and cultural competence, and professional competence. Depending on the particular interests of the student, selection may be made from eleven fields of concentration as is indicated in the copy following.

Four years are required for a Bachelor of Arts or Bachelor of Science degree. The Master of Arts is also offered. (See Graduate Studies.)

Opportunities for Home Economics graduates are many and varied. Homemaking and home management, teaching, nutrition, institution management, child care, food development, house planning, household equipment, consumer buying, clothing selection care and construction, food selection and preparation, textiles and textile treatment, and marriage and family relations, are some of the fields offered.

Positions may be with schools, hospitals, industrial concerns, manufacturers of food or appliances, utilities companies, retail stores, and others. Many students avail themselves of the broad opportunities for graduate work to qualify themselves for greater professional responsibilities.

SPECIFIC REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN HOME ECONOMICS. In addition to the general requirements for graduation listed earlier in the guidebook the following requirements must be completed for the Bachelor of Arts or Bachelor of Science degree with a major in Home Economics: A minimum of 90 credits in Home Economics selected as follows:

Required for all men: Home Economics 102, 104, 141, 151, 155, 210, 246 or 246, 246 or 246, 246 or 246, and 246.

The following courses are required according to the area of interest selected by the student.

1. GENERAL: Home Economics 258, 263, 310, 311, and 367.

2. TEACHING: Home Economics 238, 238, 308, 310, 311, 321, 342, 343, 346, and 421: a teaching minor acceptable to the School of Education; twenty-four hours in Education including Education 200, 203, 303, and 305; Art 125; Sociology 204 and 311. These courses prepare teachers for vocations in Home Economics in reimbursed schools.


5. NEWS OR MAGAZINE WRITING: English 106 and 201-202-203.


7. CONSUMER EDUCATION, PROMOTION, RETAILING: Economics 202-202-202-202; Business Administration 240, and 360; Psychology 335, 360, and 392; Sociology 335, 392, and 393.


10. AMERICAN DIETETIC ASSOCIATION INTERNSHIP: These requirements are variable and the student must confer with his advisor.

11. RESEARCH FOR INDUSTRY OR GRADUATE STUDY: Chemistry 122-122-122, 245, 260, 345-345-347; Bacteriology 300.

CURRICULA IN HOME ECONOMICS

WOMEN

Freshman year

English 104-105 Freshman Composition and Soc. 102
Elem. Soc. or Psy. 119

(1) Chem 101-102-103 General Chemistry or


Art 125-Color and Design

H. E. 102-Intro. to Personal Living

H. E. 104-Intro. to Home Management

H. E. 140-Intro. to Foods

H. E. 151-Clothing Selection

H. E. 155-Textile Selection

Health & Physical Education 101-102-103

Sophomore Year

H. E. 210-Household Equipment

H. E. 242-Meal Management

H. E. 256-Elementary Nutrition*

H. E. 280-Household Construction

Elective

Sociology 204-Courtship and Marriage

(2) Foreign Language or electives

(3) Group requirements

Health & P. E. 201-202-203

(2) Foreign Language is required for a B. A. degree with a major in Home Economics but is not required for a B. S. in Home Economics.

(1) Majors in Foods and Nutrition, Clothing and Textiles Institution Management, Food Service Management and Dietetic Internship training should elect Chemistry.

(1) Fundamental principles of adequate human nutrition.

(2) Principles of home making and dining involved in construction of simple wool and cotton garments for the student.

*Home Economics majors may take either H.E. 246 or 346 but not both.
FOR UNDERGRADUATES AND GRADUATES

302 (119) HOUSEHOLD FURNISHINGS, 1 Q. W. 3 (2-4). Prerequisite: Art 125 and Home Economics 104. Furniture selection and home furnishing. Laboratory of practical problem solving and presentation of subject matter.

311 (128) HOME MANAGEMENT, 1 Q. A. S. 2 (2-0). Prerequisites: Home Economics 102, 104, 242, 246 and 248. Residence in the home living center. Management of the home. Taken concurrently with Home Economics 301. Autumn registration is restricted to those home economics majors who take Education 495 as pre-fall teaching.

312 (129) HOME LIVING CENTER, 1 Q. A. S. 4. Prerequisites: Home Economics 102, 104, 242, and 246 or 248. Open to non-majors. Taken concurrently with Home Economics 301. Autumn registration is restricted to those home economics majors who take Education 495 as pre-fall teaching.

321 (163) METHODS OF TEACHING HOME ECONOMICS, 1 Q. W. Su. 3 (2-1). Prerequisites: Art 125 and Home Economics 104, 102, 104, 141, and 151. The fundamental principles of organization, unit planning, and method of presentation of subject matter. (Home Economics education majors should take this course as 2 credits.)

342 (138) EXPERIMENTAL FOODS, 1 Q. S. 4 (1-6). Prerequisites: Home Economics 141, 242. Foods from the scientific experimental point of view, approached by means of natural and processed foods. Special problems will be assigned;

344 (198) PROBLEMS IN HOME ECONOMICS. Any quarter 1-6. Prerequisite: senior status. Students may select for study special problems in any of the major fields in home economics.

FOR GRADUATES

501 SEMINAR IN HOME ECONOMICS. Any quarter 1-5. Prerequisite: Consent of instructor. Group analysis of problems in home economics. Total credit allowed: 15.

499 (298) THESIS. Any quarter. Credit variable. Total credit allowed: 15. (Students taking a Master of Arts degree in Home Economics must satisfy minimum requirements for thesis must have their thesis or a paper based on it published in a major recognized journal in the field of home economics.)

JOURNALISM

JOURNALISM is a broad study of the various media of communication, with emphasis on the techniques, care and use of fabrics for home and family clothing. Conservation, repair, and care of materials in the home.

242. APPLICATION OF SCIENTIFIC PRINCIPLES OF COOKERY TO LARGE QUANTITY FOOD CONSERVATION. 1 Q. W. 2 (2-2). Prerequisites: Home Economics 141, 242. The fundamental methods used in conserving, processing, and storing family processed foods.

243 (149) INSTITUTION COOKERY, 1 Q. A. 4 (1-Work one complete summer in Lodge). Prerequisites: Home Economics 141, 242. Application of cookery techniques, care and use of fabrics for home and family clothing. Menu planning for institutions; Students must do laboratory work by satisfying ten summer months in an approved institutional kitchen. This laboratory work must be taken the summer previous to enrolling in the course.

310 (133) INSTITUTION CASKETERY, 1 Q. A. S. 3 (3-4). Prerequisites: Home Economics 210, 202. Practical problems in planning a home.


391 (127) HOME LIVING CENTER, 1 Q. A. S. 4. Prerequisites: Home Economics 102, 104, 242, and 246 or 248. Open to non-majors. Residence in the home living center. Management of the home. Taken concurrently with Home Economics 301. Autumn registration is restricted to those home economics majors who take Education 495 as pre-fall teaching.

421 (183) ADVANCED PROBLEMS IN TEACHING HOME ECONOMICS. 1 Q. S. 3 (3-0). Prerequisites: Home Economics 321; Home Economics 422; Children and home economics. Problems of meat purchasing in the institution.

432 (125) NUTRITION IN DISEASE, 1 Q. A. S. 2 (2-0). Prerequisite: Home Economics 242 and Chemistry 260. Dietetics given in the light of the chemical and physical properties of food materials and the body's response to food.

433 (131) INSTITUTION ORGANIZATION AND MANAGEMENT, 1 Q. S. 3 (3-0). Problems of efficient organization and administration of food service units, personnel schedules, records, food cost, and maintenance.


436 (122) NUTRITION, 1 Q. A. S. 4 (3-2). Prerequisites: Home Economics 242 and Chemistry 260. Dietetics given in the light of the chemical and physical properties of food materials and the body's response to food.

439 (198) PROBLEMS IN HOME ECONOMICS. Any quarter 1-6. Prerequisite: senior status. Students may select for study special problems in any of the major fields in home economics.

499 (298) THESIS. Any quarter. Credit variable. Total credit allowed: 15. (Students taking a Master of Arts degree in Home Economics must satisfy minimum requirements for thesis must have their thesis or a paper based on it published in a major recognized journal in the field of home economics.)
JOURNALISM CURRICULUM

NEWS-EDITORIAL SEQUENCE: An additional 9 hours required to be chosen from Journalism 327, 390, 470, 471, 495.

ADVERTISING SEQUENCE. An additional 9 hours required to be chosen from Journalism 340, 345, 387, 348.

MAGAZINE SEQUENCE. An additional 9 hours required to be chosen from Journalism 327, 332, 335, 334.

RADIO-TELEVISION SEQUENCE: An additional 9 hours required to be chosen from Journalism 340, 345, 346, 347, 348.

COMMUNITY JOURNALISM: An additional 9 hours required to be chosen from Journalism 350, 351, 336, 346, 495.

Note: Students wishing to major primarily in radio or television journalism should take the radio-television sequence in Journalism. The College of Arts and Sciences and the School of Journalism also offer a curriculum leading to a Bachelor of Arts degree with a major in Radio-Television (see Radio-Television).

FOR UNDERGRADUATES

100 INTRODUCTION TO JOURNALISM. 1 Q. A. W. S. Su. 3. Open to non-majors. History, organization, techniques and responsibilities of the media of mass communication, with emphasis on the newspaper.

127 (17) ELEMENTARY PHOTOGRAPHY. 1 Q. A. W. S. Su. 3. Prerequisite: consent of instructor. Open to non-majors, photography equipment, materials, and facilities with practice in taking pictures under varied conditions and processing of films and prints.

128 (38) TYPOGRAPHY. 1 Q. A. W. S. Su. 2. Prerequisite: consent of instructor. Problems of typographical design and application. Elementary work in printing and in the handling of type.

140 INTRODUCTION TO RADIO AND TELEVISION. 1 Q. W. 2. Open to non-majors. Study of how radio and television are a part of communication systems.


210 (R5) STUDIO EQUIPMENT. 1 Q. A. 3. An introduction to the use of audio and visual equipment used in the radio or television broadcast career. Emphasis on practical production and research in advanced journalism problems.

241 RADIO-TV SPEECH. (See Speech). (a) RADIO EDITING. 2 Q. A. W. 3, 3. Prerequisite: Journalism 100 or consent of instructor. Open to non-majors. Production and practice of editing and makeup of magazine stories.

259 (49) HISTORY AND PRINCIPLES OF JOURNALISM. 1 Q. S. 2. Open to non-majors. History, organization, techniques and responsibilities of the media of mass communication, with emphasis on the newspaper.

277 (152) NEWS PHOTOGRAPHY. 1 Q. S. 3. Prerequisite: Journalism 127 or consent of instructor. Photographic techniques with emphasis on the newspaper.

282 (132) MAGAZINE MAKEUP AND EDITING. 1 Q. A. 3. Prerequisite: Journalism 100 or consent of instructor. Open to non-majors. Theory and practice of editing and makeup of magazines. Practice includes the use of type and illustrations, and adapting format to content.

283 (133) MAGAZINE ARTICLE WRITING. 1 Q. W. Su. 3. Prerequisite: consent of instructor. Open to non-majors. The preparation and writing of articles for general circulation. Techniques of analyzing and selling to magazine markets.

324 (134) TRADE AND TECHNICAL JOURNALISM. 1 Q. S. 2, 3. Prerequisite: consent of instructor. Open to non-majors. The writing and editing of trade and business journals, technical and specialized publications.

333 (135) PROMOTION AND PUBLIC RELATIONS. 1 Q. A. W. S. Su. 3. Prerequisite: consent of instructor. Open to non-majors. The techniques and theories of promotion and public relations.

340 RADIO-TELEVISION CONTINUITY. 1 Q. S. 3. Prerequisite: or consent of instructor. Open to non-majors. The techniques and theories of writing for radio and television. Writing programs for broadcasting.

345 (145) NEWSCASTING. 1 Q. A. 3. Prerequisite: Journalism 271 or consent of instructor. Preparation of radio as a news medium. Preparation of local newscasts.

346 (146) RADIO EDITING. 1 Q. W. 3. Prerequisite: Journalism 285 or consent of instructor. Preparation of radio news scripts from written and local newscasts.

347 (147) SPECIAL EVENTS. 1 Q. S. 3. Prerequisite: Journalism 346. Radio interviews, sports, interpretation, and comment; practice in newscasting.

348 (148) RADIO-TELEVISION ADVERTISING. 1 Q. W. 3. Prerequisite: Journalism 140. A theoretical course in the theories and economics of radio and television advertising, with emphasis on research methods, copy appeals, influence on the community and on society.

50—JOURNALISM

Total recommended hours in Journalism ______ 45

Total recommended hours in General Education ______ 135

FOR GRADUATES

350—351 (125ab) COMMUNITY JOURNALISM. 2 Q. A. W. 2, 2. Prerequisite: Journalism 271. Theories and practice of the techniques of writing for radio and television, with emphasis on the newspaper. Preparation of radio and television, with emphasis on the newspaper.

352 (124) NEWSPAPER MANAGEMENT. 1 Q. A. W. S. 3. Prerequisite: Journalism 271. Theories and practice of the techniques of writing for radio and television, with emphasis on the newspaper.

359 (146a) PRINCIPLES OF ADVERTISING. 1 Q. A. 3. Open to non-majors. Fundamentals of advertising theory and techniques with an emphasis on the newspaper. Preparation of radio and television, with emphasis on the newspaper.

411 (ADVERTISING SALES. 1 Q. A. W. S. Prerequisite: Journalism 300 or consent of instructor. Preparation of radio and television, with emphasis on the newspaper.

439b) ADVISING MEDIA. 1 Q. W. 3. Prerequisite: Journalism 300 or consent of instructor. Preparation of radio and television, with emphasis on the newspaper.

563 (143) ADVISING MEDIA. 1 Q. S. 3. Prerequisite: Journalism 439 or consent of instructor. Preparation of radio and television, with emphasis on the newspaper.

564 (144) RETAIL STORE ADVERTISING. 1 Q. A. 3. Prerequisite: Journalism 300 or consent of instructor. Preparation of radio and television, with emphasis on the newspaper.

571 (23) ADVANCED REPORTING. 1 Q. A. W. S. 2. Prerequisite: Journalism 271. News coverage, reporting and publishing problems.

590 (30) NEWS EDITING. 1 Q. A. W. 3. Prerequisite: Journalism 271. Instruction and practice in revision of copy, headline writing, use of references and principles of local and wire news editing.

591 (31) ADVANCED NEWS EDITING. 1 Q. A. W. 2. Prerequisite: Journalism 271. News editing and layout problems.

FOR UNDERGRADUATES AND GRADUATES

516 (126) SCHOOL PUBLICATIONS. 1 Q. S. 3. Prerequisite: consent of instructor. Open to non-majors. For students who plan to teach journalism courses in high schools or act as advisors to school publications.

517 (S117) SCHOOL PUBLICATIONS. 1 Q. S. 3. Prerequisite: Journalism 127 or equivalent. Credit available in one of the prerequisite courses. Open to non-majors. For students who plan to teach journalism courses in high schools or act as advisors to school publications.

590 (156) PUBLIC OPINION. 1 Q. A. W. S. 3. Open to non-majors. Theories of public opinion, factors involved in its formulation, and methods used in its measurement.

597 (157) LAW OF JOURNALISM. 1 Q. S. 3. Legal guarantees and limitations of the right to gather and publish news and to comment on it.

598 (159) ADVANCED JOURNALISM PROBLEMS. 1-3 Q. A. W. 3, 3, 3. Prerequisite: Journalism 439 or consent of instructor. Open to non-majors. For students who plan to teach journalism courses in high schools or act as advisors to school publications.

599 (160) CINEMATOGRAPHY. 1 Q. S. 3. Prerequisite: Journalism 127 or equivalent. Consent of instructor. Preparation of film jobs in journalism. Making of motion pictures for documentary or educational purposes.

641-442-443 (R46abc) RADIO-TELEVISION PRODUCTION AND DIRECTION. 3 Q. A. W. S. 3, 3, 3. Prerequisite: 240 and 12 hours in radio-television or equivalent. Open to non-majors. Preparation of television news reports and production and directing radio and television programs.

644 emphasizes radio, 442 and 443 emphasize television.

699 (299) COMMUNITY AFFAIRS. 1 Q. W. Lab. Work in coverage of political and governmental news at the city, county, state, and federal levels.

712 (152) SPECIALIZED REPORTING. 1 Q. S. 3. Prerequisite: Journalism 371. A tutorial course for students wishing to specialize in a particular field of reporting such as politics, labor, finance, and science.

901-992-993 (100abc) SENIOR SEMINAR. 3 Q. A. W. S. 2, 2. Prerequisite: senior standing in journalism. Investigative methods of editing, study of several aspects of American society which constitute the background for many news stories, and practice in research methods.

949 RADIO-TELEVISION SEMINAR. 1 Q. S. 3. Prerequisite: open to non-majors. For students who plan to teach journalism courses in high schools or act as advisors to school publications.

951 (125) EDITORIAL WRITING. 1 Q. S. 3. The editorial page and leading newspaper. Practice in research and the writing of editorials.

953 MASS MEDIA IN MODERN SOCIETY. 1 Q. W. 3. Prerequisite: consent of instructor. The interrelations between media of mass communication and diverse facets of modern society.

957 INTERNATIONAL COMMUNICATIONS. 1 Q. S. 3. Prerequisite: consent of instructor. The international flow of information in other countries, with emphasis on newspapers.

FOR GRADUATES

598 THEORIES OF COMMUNICATIONS. 1 Q. A. W. 3. Prerequisite: consent of the dean. Structure, processes and effects of communication.

599 METHODS OF JOURNALISM RESEARCH. 1 Q. A. W. 3. Prerequisite: consent of the dean. Problems and techniques in study and analysis of communications.

601 (201) RESEARCH IN JOURNALISM. 1 Q. A. W. 3. Prerequisite: consent of the dean. Problems and techniques in study and analysis of communications.
LAW—51

An applicant enrolled in an approved combination program or who has received a grade of B or better for an ungraded law course is eligible to be admitted unless he has a high scholastic average and is exceptionally qualified to pursue the study of Law.

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 in which admission is sought. Information concerning the Test and application forms may be obtained from the School of Law or from the Educational Testing Service, P. O. Box 592, Princeton, New Jersey.

For the student entering college on and after September, 1955, a number of combination programs in law are offered by the Law School in cooperation with various departments of the University. These include Accounting and Law, Business Administration and Law, Economics and Law, Geology and Law, History and Political Science and Law, and Philosophy and Law. Combination programs in the various departments if agreed upon by both will be recognized. Students enrolled in approved combination programs receive an undergraduate degree in the field in which they are majoring at the end of the first year of law and the LL.B. degree at the end of the third year of law. Starting in September, 1965, prospective candidates for Graduate School in the arts with a major in law must secure prior approval of their contemplated course of study from the Dean of the Law School. It is strongly recommended that all prospective applicants for the Law School complete Latin 101-102-103 and Accounting 201-202 and 203.

Admissions to advanced standing is subject to a number of conditions:
1. Applicants must have graduated from a law school accredited by the Association of American Law Schools and be one year beyond the first-year students. 
2. They must have completed all requirements for the degree if, in the opinion of the majority of the law faculty, they are exceptionally qualified to pursue the study of law.
3. The faculty expresses the opinion that the student has demonstrated a high degree of intellectual capacity and that he is committed to a career in the legal profession.
4. The student must have been recommended for admission to the Law School by his law school or have a degree from a law school accredited by the Association of American Law Schools.

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:
(a) that the law work previously undertaken has been in an approved law school;
(b) that the student has received and recorded a grade is equivalent to that required for graduation from the institution attended;
(c) that the average in all law work for which the student has registered and received a grade, or fails to maintain such an index thereafter, will be dropped from the Law School.

BASIS FOR EXCLUSION: (1) Failures: A student who has failed or is failing, or more than one-third of the total grade points, or has a very high scholastic average and is exceptionally qualified to pursue the study of law.

REQUIREMENTS FOR GRADUATION: Candidates for the degree of Bachelor of Laws (B.L.L.) must:
(a) complete all required courses in the student's combination program in law and have a minimum of 2.5 in all law courses for which he has registered and received a grade. In all combinations in which the student has completed at least 20 credits at an approved law school, the last two of which must be at the University of Montana, the student must have a 2.3 grade point average for the required courses in military drill and physical education are accepted; and
(b) have completed all required courses in military drill and physical education are accepted; and
(c) have completed a 12-hour concentration in business law, which is defined as an area of study designed to prepare students for careers in business and organizations.

SECOND YEAR

Sem. Hr.

FIRST YEAR

First Semester

Sem. Hr.

Second Semester

Sem. Hr.

Civil Procedure, I 2

Civil Procedure, II 2

Constitutional Law 3

Constitutional Law 3

Criminal Law 3

Criminal Law 3

Equity 3

Equity 3

Introduction to Law, I 1

Introduction to Law, I 1

Property, I 3

Property, I 3

Property, II 3

Property, II 3

Torts, I 3

Torts, I 3

Torts, II 3

Torts, II 3

Wills 2

Wills 2

SECOND YEAR

Administrative Law 2

Administrative Law 2

Agency and Business Organizations, I 3

Agency and Business Organizations, I 3

Civil Procedure, III 3

Civil Procedure, III 3

Commercial Transactions, I 3

Commercial Transactions, I 3

Constitutional Law 3

Constitutional Law 3

Evidence 4

Evidence 4

Legal Writing, I 3

Legal Writing, I 3

Trusts and Future Interests 1

Trusts and Future Interests 1

Wills 2

Wills 2
### COURSES

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<tbody>
<tr>
<td>CONFLICTS</td>
<td>1 Sem. S. 4, Cheatham, Dowling, Goodrich and Griswold, Cases on Conflict of Law, 3rd edition.</td>
</tr>
<tr>
<td>CREDITORS' RIGHTS</td>
<td>1 Sem. S. 3, 3. Nadler, Creditor and Debtor Relations.</td>
</tr>
<tr>
<td>EVIDENCE</td>
<td>1 Sem. A. 4, McCormick's Cases on Evidence.</td>
</tr>
<tr>
<td>FEDERAL TAXATION II</td>
<td>1 Sem. 2, Kauper and Wright, Cases and Materials on Federal Income Taxation, (lithographed); Prentice-Hall, Students Tax Law Service.</td>
</tr>
<tr>
<td>FEDERAL TAXATION II</td>
<td>1 Sem. 2, Kauper and Wright, Cases and Materials on Estate, Inheritance, and Gift Taxation, (lithographed); Prentice-Hall, Students Tax Law Service: various estate planning materials, prepared by the instructor.</td>
</tr>
<tr>
<td>INTRODUCTION TO LAW I &amp; II</td>
<td>2 Sem. A. S. 1, 1. Continuous. Casebook to be announced.</td>
</tr>
<tr>
<td>LABOR LAW</td>
<td>1 Sem. A. 2, Casebook to be announced.</td>
</tr>
<tr>
<td>LEGAL ETHICS</td>
<td>1 Sem. S. 1, Cheatham, Cases and Materials on the Legal Profession, 2nd edition.</td>
</tr>
<tr>
<td>LEGAL WRITING III</td>
<td>1 Sem.</td>
</tr>
<tr>
<td>WATER LAW</td>
<td>1 Sem. S. 2, Mimeoographed materials of instructor.</td>
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</table>

### THIRD YEAR

| Conflicts | 4 |
| Court Room and Office Practice I, II | 4 |
| Creditors' Rights | 3 |
| Criminal Procedure | 3 |
| Federal Taxation I, II | 3 |
| Labor Law | 3 |
| Legal Ethics | 3 |
| Legal Writing III | 3 |
| Oil and Gas | 3 |
| Restitution | 3 |
| Secured Transactions | 3 |
| Trade Regulations | 3 |
| Water Law | 2 |

### MATHEMATICS

Mathematics is concerned not only with formulas and processes which give "answers" to problems but with the fundamental ideas which are the basis for modern development in most other sciences. It is science in its own right and is still growing rapidly.

Four years are required for the Bachelor of Arts degree. The Master of Arts degree is also offered (see Graduate Studies).

Graduates find a growing range of occupations open to them—in engineering, the sciences, economics, or business. They may teach in high schools or, with further training, in colleges and universities. Industry and government make increasing use of skilled mathematicians. Such positions may involve work ranging from elementary computation to highly complicated statistical procedures and research.

Modern high speed computing devices, instead of replacing mathematicians, have increased their usefulness. A high degree of mathematical ability is required to put a problem into a form in which the machine can handle it.

### HIGH SCHOOL PREPARATION

In addition to the general requirements for admission to the University, the student needs four years of algebra and a year of geometry. It is recommend that the high school preparation include all of the mathematics possible.

### SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN MATHEMATICS

In addition to the general requirements for graduation listed earlier in the guidebook the following special requirements must be completed for the Bachelor of Arts Degree with a major in Mathematics. A minimum of 42 credits in Mathematics including Mathematics 131, 152, 153, 251, 252 or Mathematics 114, 116, 121, 122, 125; 19 credits in Mathematics courses numbered above 300; 15 credits in Physics or 15 credits in mathematical sta-
324 ELEMENTARY NUMBER THEORY. 1 Q. S. 5. Prerequisite: at least 20 cr. in Mathematics with a grade of C- or better.

341-342-343 (140abc) MATHEMATICAL STATISTICS. 3 Q. A. S. W. Prerequisite: Mathematics 100. (Note: Students must pass 342 and conson with the instructor. (314) Development of necessary mathematical concepts, probability, random variables and distribution function. (342) Random variables, distribution functions, sampling, testing hypothesis. (343) A continuation of 342.

360 (150) SEMINAR. 1 Q. Any quarter. Credit variable. Total credit allowed: 10. Prerequisite: consent of instructor. Guidance in special work.


411 (111) INTRODUCTION TO FUNCTIONS OF A COMPLEX VARIABLE II. 1 Q. W. 3. Prerequisite: Mathematics 409. 312.


421 (181) ANALYSIS I: TOPOLOGY. 1 Q. A. 3. Prerequisite: Mathematics 310. The theory of plane sets of points, of general sets of points and properties invariant under continuous and topological transformations.

422 (191) ABSTRACT ALGEBRA I. 1 Q. A. 3. Prerequisites: Mathematics 310 and 312. Groups, rings, isomorphisms, homomorphisms, integral domains, fields, and finite fields.

423 (183) ANALYSIS II: THE LEBESGUE INTEGRAL. 1 Q. W. 3. Prerequisite: Mathematics 422. The theory of Lebesgue measure and Lebesgue integration in Euclidean n-space.

424 (192) ABSTRACT ALGEBRA II. 1 Q. W. 3. Prerequisite: Mathematics 422. Theory of fields, field extensions, Galois fields, norms and traces.

425 (185) ANALYSIS III. MEASURE AND INTEGRATION. 1 Q. W. 3. Prerequisite: Mathematics 424. Set functions, semi-ring, measures, intervals, and fields of sets measures. The general theory of integration with respect to a measure function.

431-432 ABSTRACT ALGEBRA III. 1 Q. S. 3. Prerequisite: Mathematics 424. Groups with operators, normal series and composition series, Galois theory, real fields, fields with valuations.

FOR GRADUATES

600 (200) GRADUATE SEMINAR. 1 Q. Any quarter. Credit variable. Prerequisite: graduate standing and consent of the instructor. This course provides guidance in graduate subjects or research work.

699 (299) THESIS. Any quarter. Credit variable. Total credit allowed: 15.


MEDICAL TECHNOLOGY—53

MEDICAL TECHNOLOGY is a combined study of the sciences of biochemistry, physics, physiology, and bacteriology. It involves the various biochemical, physical, and physiological processes of the human body as well as the isolation and identification of various micro-organisms which cause disease in humans. Medical technologists must be well acquainted with the abnormal changes in the blood by biochemical tests and by microscopic evaluation. Some become X-ray technicians.

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 zoology as well as in obtaining an understanding of social science and cultural subjects. The last two years are designed to develop efficiency in the various aspects of bacteriology, parasitology, hematology, and applied biochemistry.

Medical technologists are in great demand in the laboratories of hospitals, in doctors' offices, research institutions, and in federal and state health departments. Upon completion of the work at the University, the student should spend a year in a hospital or laboratory that has been recognized by the American Association of Clinical Pathologists. Following this year's work in the hospital, the student must pass the examination given by the American Association of Clinical Pathologists in order to qualify as a registered medical technologist. Since the number of internships available is limited, the department will recommend candidates for these internships largely on the basis of superior scholarship.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, the student needs

FOR UNDERGRADUATES

001 (A) PRE-FRESHMAN ALGEBRA. 1 Q. A. 0. For students who do not qualify for Mathematics 100.

100 (16) INTERMEDIATE ALGEBRA. 1 Q. A. W. S. Su. 2. Prerequisite: satisfactory performance in an examination in elementary algebra.

116 (16) COLLEGE ALGEBRA. 1 Q. W. S. 5. Prerequisite: Mathematics 100 or satisfactory performance in an examination in intermediate algebra. This course will not be offered after 1957-58.

121 (21) PLANE ANALYTIC GEOMETRY. 1 Q. S. Su. 5. Prerequisite: Mathematics 113 and 116. This course will not be offered after 1957-58.

125 (25) STATISTICS. 1 Q. A. W. S. 5. Prerequisite: Mathematics 100 or satisfactory performance in an examination in intermediate algebra.

130 (130) THEORY OF ARITHMETIC. 1 Q. A. W. 5. Prerequisite: Mathematics 100 or satisfactory performance in an examination in intermediate algebra. The mathematical meaning and background of arithmetic.

151 FRESHMAN MATHEMATICS I. 1 Q. A. W. S. 5. Prerequisite: Mathematics 100 or satisfactory performance in an examination in intermediate algebra. This course will not be offered after 1956.

152 FRESHMAN MATHEMATICS II. 1 Q. W. 5. Prerequisite: Mathematics 151. Determinants; identities; complex numbers; transformations of coordinate systems; conic sections.

153 FRESHMAN MATHEMATICS III. 1 Q. A. W. 5. Prerequisite: Mathematics 152. Permutations; combinations; and probability; progressions, differentiation of algebraic functions; theory of equations.

222 (22) CALCULUS I. 1 Q. A. 5. Prerequisite: Mathematics 121. Differential calculus and introductory work on integration. This course will not be offered after 1956.

223 (23) CALCULUS II. 1 Q. W. 5. Prerequisite: Mathematics 222. Applications of the differential calculus; integral calculus. This course will not be offered after 1956.

224 (24) CALCULUS III. 1 Q. S. 5. Prerequisite: Mathematics 223. Infinite series; functions of a complex variable; functions; partial differentiation; multiple integration. This course will not be offered after 1956.

225 SOPHOMORE MATHEMATICS I. 1 Q. A. W. 5. Prerequisite: Mathematics 224. Integration techniques; further applications of the derivative and the integral. Individual sequence.

226 SOPHOMORE MATHEMATICS II. 1 Q. W. 5. Prerequisite: Mathematics 225. Solid analytic geometry; partial derivatives; multiple integrals; infinite series.

The sequence 121, 123, 131, 231, 251, 252, 253 is designed to replace the sequence 113, 116, 121, 222, 223, 224. Permission of the Department Chairman is required for credit in courses in this sequence if the student already has credit for courses in the other sequence.

FOR UNDERGRADUATES AND GRADUATES

201 (311) ALGEBRA FOR TEACHERS. 1 Q. W. Su. 5. Prerequisite: satisfactory performance in algebraic examinations.

202 (202) THEORETICAL ALGEBRA. 1 Q. A. W. S. 3. Prerequisite: Mathematics 116, or 125, or 152, and consent of the instructor. Primarily intended for those who find need for specific technical techniques in the fields of application: (302) Descriptive statistics, principles of estimation, confidence intervals, tests of significance; (303) analysis of variation, design of experiments, simplified statistics.

202 (312) GEOMETRY FOR TEACHERS. 1 Q. W. Prerequisite: consent of the instructor. The subject matter of high school geometry compared with that of other geometries.

203-204 (109ab) ELEMENTARY STATISTICS. 2 Q. A. W. 3. Prerequisite: consent of instructor. Statistics 203 or 204.


214 (112) LINEAR GROUPS. 1 Q. S. 1. Prerequisite: Mathematics 221-222.

220 SYNTHETIC PROJECTIVE GEOMETRY. 1 Q. A. 3. Prerequisite: satisfactory performance in geometry and trigonometry.

221 PROJECTIVE GEOMETRY. 1 Q. W. 3. Prerequisite: Mathematics 311. Projective transformations, projective invariants, and conic by means of coordinate systems.

222 ANALYTIC PROJECTIVE GEOMETRY. 1 Q. W. 3. Prerequisite: Mathematics 311. Projective transformations, projective invariants, and conics by means of coordinate systems.
algebra and chemistry. It is also recommended that the high school preparation include advanced algebra.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN MEDICAL TECHNOLOGY.** At least the fourth year of the following prescribed courses must be taken in residence at this University, and preferably the third and fourth years. In addition to the general requirements for graduation listed earlier in this guidebook, the following courses in the several curricula noted below comprise the professional curriculum leading to the degree of Bachelor of Science in Medical Technology. For further description of these courses, see the detail given elsewhere in this guidebook.

To be certified by the Board of Registry, a student must have had an internship of at least 12 consecutive months in an Approved School of Medical Technology endorsed by the American Medical Association. However, it is in the professional compact of the program which the prospective medical student has followed prior to admission to college. Further, the New York State Department of Health, in an attempt to avoid certification, the student can apply for certification in medical technology by the Board of Registry. All of the approved schools are connected with hospitals, medical schools, or state boards of health. After completing college and technical training, the student is given a diploma certifying his qualification as a medical technologist.

**MEDICAL TECHNOLOGY CURRICULUM**

About half of the freshmen start their English winter quarter and take Mathematics or Psychology autumn quarter.

**FRESHMAN YEAR**

<table>
<thead>
<tr>
<th>Course</th>
<th>A</th>
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<tbody>
<tr>
<td><em>Electives</em> ______________________________</td>
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<tr>
<td>Bact. 402—Hematology _______________________</td>
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<tr>
<td>Bact. 400—Advanced Bacteriology</td>
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<tr>
<td><em>Elective</em> ________________________________</td>
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<tr>
<td>Bact. 405—Seminar</td>
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<tr>
<td>Chem. 245—Quantitative Analysis</td>
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<tr>
<td><em>Group Requirements</em> _______________________</td>
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<tr>
<td>ROTC 101-102-103—Military or Air Science (men)</td>
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**SOPHOMORE YEAR**

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<th>Course</th>
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<tbody>
<tr>
<td><em>Electives</em> ______________________________</td>
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<tr>
<td>Chem. 261-292-293—Chem. of Carbon Comp.</td>
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<tr>
<td>Zoo. 291—Comp. Vert. Anatomy</td>
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<tr>
<td>Physics 11-110-113—General Physics</td>
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<tr>
<td><em>Group Requirements</em> _______________________</td>
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<tr>
<td>ROTC 201-202-203—Military or Air Science (men)</td>
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**JUNIOR YEAR**

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<th>Course</th>
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<tbody>
<tr>
<td>Bact. 300—General Bacteriology</td>
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<tr>
<td>Bact. 301—Immunology</td>
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<tr>
<td>Bact. 305—Medical Microbiology</td>
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<tr>
<td>Zool. 305—Parasitology</td>
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<tr>
<td>Chem. 245—Quantitative Analysis</td>
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<tr>
<td><em>General 151-152-153—Intro to Humanities</em></td>
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<tr>
<td><em>Elective</em> ________________________________</td>
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**SENIOR YEAR**

<table>
<thead>
<tr>
<th>Course</th>
<th>A</th>
<th>W</th>
<th>S</th>
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</thead>
<tbody>
<tr>
<td>Bact. 402—Hematology</td>
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<tr>
<td>Bact. 400—Advanced Bacteriology</td>
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<tr>
<td>Bact. 403—Seminar</td>
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<td></td>
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<tr>
<td>Zool. 305—Histology</td>
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<td></td>
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<tr>
<td>Zool. 306—Human Physiology</td>
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<tr>
<td>Chem. 384—Physiological Chemistry</td>
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<tr>
<td><em>Electives</em> ______________________________</td>
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</table>

**REQUIREMENTS FOR ADMISSION.** In general, admission as a freshman in the School of Music is by certificate from the high school from which the student graduates. The faculty of the School of Music is more concerned with talent, conspicuous achievement in music, promise of development, and in scholarship in general, than it is in the precise content of the program which the prospective music student has followed prior to admission to college. The School of Music 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 this guidebook, the following special requirements must be completed.

1. All candidates for the Bachelor of Music degree must select academic electives so as to complete a minimum of $4 credits not including required freshman and sophomore physical education and military science, courses in music, and courses in education offered for state certification.

2. For the Bachelor of Music with a major in Music Education, the course requirements in Curriculum A must be completed.

3. For the Bachelor of Music with a major in Applied Music or in Theory and Composition, the course requirements in Curriculum B must be completed.

4. For the Bachelor of Arts degree with music as a major, the course requirements in Curriculum B must be completed.

5. All students majoring in music are required to attend a minimum of eight recitals per quarter as prescribed by the faculty.

6. All music majors have a B.M. degree are required to participate in Band, Orchestra or a Choral Group each quarter of residency. Students who are wind instrument majors in their applied field must register for Band (or Orchestra, if designated) every quarter, string majors must register for orchestra every quarter, voice majors must register for a cappella choir every quarter. Piano and organ majors must fulfill this requirement by the election of Music 140 or Music 110. Exceptions to this requirement may be made only by action of the music faculty.

7. All candidates for the Bachelor of Music degree must satisfactorily demonstrate completion of 6 credits in Piano 100 or completion of Piano in Class 217.

**APPLIED MUSIC FEES**

Non-music majors pay $24 for two lessons per week, or $12 for one lesson per week, per quarter. Music majors will pay a $20 fee if taking two or more half-hour lessons per week. Otherwise they pay the standard fees as stated for non-music majors. All of these are halved for the five-week summer term.

For majors and non-majors who register for applied music for less than a full quarter, or who withdraw before the end of the quarter, a charge of $1.75 per private lesson will be made. Refunds are based on the number of weeks elapsed since the beginning of the quarter.

Lessons in applied music missed by the instructor will be made up during the next quarter. Lessons missed by students or lessons falling on a legal holiday will not be made up.

**RENTALS, PER QUARTER**

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<table>
<thead>
<tr>
<th>Description</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice room without piano, one hour</td>
<td>$2.00</td>
</tr>
<tr>
<td>Additional hour daily</td>
<td>1.00</td>
</tr>
<tr>
<td>Piano and practice room, one hour daily</td>
<td>3.00</td>
</tr>
<tr>
<td>Additional hour daily</td>
<td>2.00</td>
</tr>
<tr>
<td>Organ and practice room, one hour daily</td>
<td>6.00</td>
</tr>
<tr>
<td>Additional hour daily</td>
<td>5.00</td>
</tr>
<tr>
<td>Wind and string instruments</td>
<td>3.00</td>
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</tbody>
</table>

Rentals must be paid for entire quarter. No refunds of rentals will be made.

(The above fees are subject to modification by action of the State Board of Education.)
A. CURRICULUM FOR BACHELOR OF MUSIC DEGREE WITH A MAJOR IN MUSIC EDUCATION:

For students who sincerely feel the challenge and vital service opportunity in the teaching profession, and whose high school background includes experience in musical organizations, Montana State University offers three major courses, each leading to the degree of Bachelor of Music with a major in Music Education.

Students desirous of teaching and directing both vocal and instrumental music may enroll for the General Supervisor's Course. Separate courses for vocal and instrumental majors are available. These courses of study meet the state requirements for certification for public school teaching (see Education).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits per Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music 101, 102, 103 (Applied)</td>
<td>General Music</td>
<td>1.1</td>
</tr>
<tr>
<td>Music 110 (Organization)</td>
<td></td>
<td>1.1</td>
</tr>
<tr>
<td>Music 111-112-113 (Theory I)</td>
<td></td>
<td>2.2</td>
</tr>
<tr>
<td>Music 114, 115, 116 (Music in Class)</td>
<td></td>
<td>1.1</td>
</tr>
<tr>
<td>Music 125, 126, 127 or 129 (Strings or Winds in Class)</td>
<td></td>
<td>1.1</td>
</tr>
<tr>
<td>Music 135, 136, 137 (Introduction to Music Literature)</td>
<td></td>
<td>2.2</td>
</tr>
<tr>
<td>Health &amp; Physical Educ. 101-102-103</td>
<td></td>
<td>1.1</td>
</tr>
<tr>
<td>R.O.T.C. 101-102-103 (Men)</td>
<td></td>
<td>2.1</td>
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</tbody>
</table>

**GENERAL SUPERVISOR MAJOR**

**FRESHMAN YEAR:**
- Music 201, 202, 203 (Applied)
- Music 215, 216, 217 (Piano in Class)
- Music 231, 232, 233 (Conducting)
- Music Electives (Non-Music)

**SOPHOMORE YEAR:**
- Music 301, 302, 303 (Applied)
- Music 310 (Organization)
- Music 324, 325 (History of Music)
- Music 329, 330, 331 (Orchestration)
- Music Electives (Upper Division)
- Health & Physical Educ. 201-202-203
- R.O.T.C. 201-202-203 (Men)

**JUNIOR YEAR:**
- Music 401, 402, 403 (Applied)
- Music 410 (Organization)
- Music 424, 425, 426 (Theory II)
- Music Electives (Practice Teaching)
- Electives (Non-Music)

**SENIOR YEAR:**
- Music 434, 435, 436 (History of Music)
- Music Electives (Senior Recital)

**MAJOR IN VOICE**

**CREDITS PER QUARTER:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits per Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music 181, 182, 183 (Applied)</td>
<td>Music 181, 182, 183 (Applied)</td>
<td>1.1</td>
</tr>
<tr>
<td>Music 190 (Organization)</td>
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<td>1.1</td>
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<tr>
<td>Music 191-192-193 (Theory I)</td>
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<td>2.2</td>
</tr>
<tr>
<td>Music 194, 195, 196 (In Piano in Class)</td>
<td></td>
<td>1.1</td>
</tr>
<tr>
<td>Music 225, 226, 227 (Introduction to Music Literature)</td>
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<td>2.2</td>
</tr>
<tr>
<td>English 104-105 &amp; Psych. 110</td>
<td></td>
<td>5.5</td>
</tr>
<tr>
<td>Health &amp; Physical Educ. 101-102-103</td>
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<td>2.2</td>
</tr>
<tr>
<td>R.O.T.C. 101-102-103 (Men)</td>
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<td>2.1</td>
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</tbody>
</table>

**FRESHMAN YEAR:**
- Music 201, 202, 203 (Applied)
- Music 215, 216, 217 (Piano in Class)
- Music 231, 232, 233 (Conducting)
- Music Electives (Non-Music)

**SOPHOMORE YEAR:**
- Music 301, 302, 303 (Applied)
- Music 310 (Organization)
- Music 324, 325 (History of Music)
- Music 329, 330, 331 (Orchestration)
- Music Electives (Upper Division)
- Electives (Non-music)

**JUNIOR YEAR:**
- Music 401, 402, 403 (Applied)
- Music 410 (Organization)
- Music 424, 425, 426 (Theory II)
- Music 434, 435, 436 (History of Music)
- Music Electives (Non-Music)

**SENIOR YEAR:**
- Music 434, 435, 436 (History of Music)
- Music Electives (Non-Music)

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**INSTRUMENTAL MAJOR**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits per Quarter</th>
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</thead>
<tbody>
<tr>
<td>Music 101, 102, 103 (Piano)</td>
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<td>2.2</td>
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<tr>
<td>Music 104, 105, 106 (Organ)</td>
<td></td>
<td>2.2</td>
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<tr>
<td>Music 110 (Organization)</td>
<td></td>
<td>1.1</td>
</tr>
<tr>
<td>Music 125, 126, 127 or 129 (Strings or Winds in Class)</td>
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<tr>
<td>Languages 201, 202, 203</td>
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<td>3.3</td>
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<tr>
<td>R.O.T.C. 201-202-203 (Men)</td>
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<td>2.2</td>
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</tbody>
</table>

**FRESHMAN YEAR:**
- Music 201, 202, 203 (Applied)
- Music 215, 216, 217 (Piano in Class)
- Music 231, 232, 233 (Conducting)
- Music Electives (Upper Division)
- Health & Physical Educ. 201-202-203
- R.O.T.C. 201-202-203 (Men)

**SOPHOMORE YEAR:**
- Music 301, 302, 303 (Applied)
- Music 310 (Organization)
- Music 324, 325 (Theory II)
- Music 329, 330, 331 (Orchestration)
- Music Electives (Upper Division)
- Music Electives (Non-Music)

**JUNIOR YEAR:**
- Music 401, 402, 403 (Applied)
- Music 410 (Organization)
- Music 424, 425, 426 (Theory II)
- Music 434, 435, 436 (History of Music)
- Music Electives (Non-Music)

**SENIOR YEAR:**
- Music 434, 435, 436 (History of Music)
- Music Electives (Non-Music)

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**MAJOR IN THEORY AND COMPOSITION**

**CREDITS PER QUARTER:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits per Quarter</th>
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<tbody>
<tr>
<td>Music 101, 102, 103 (Piano)</td>
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<td>1.1</td>
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<tr>
<td>Music 104, 105, 106 (Organ)</td>
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<td>1.1</td>
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<tr>
<td>Music 110 (Organization)</td>
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<tr>
<td>Music 111-112-113 (Theory I)</td>
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<tr>
<td>Music 114-115-116 (Piano in Class)</td>
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<td>1.1</td>
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<tr>
<td>Music 125, 126, 127 (Introduction to Music Literature)</td>
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<td>2.2</td>
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<tr>
<td>English 104-105 &amp; Psych. 110</td>
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<td>5.5</td>
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<tr>
<td>Health &amp; Physical Educ. 101-102-103</td>
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</tr>
<tr>
<td>R.O.T.C. 101-102-103 (Men)</td>
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**FRESHMAN YEAR:**
- Music 201, 202, 203 (Applied)
- Music 215, 216, 217 (Piano in Class)
- Music 231, 232, 233 (Conducting)
- Music Electives (Upper Division)
- Electives (Non-music)

**SOPHOMORE YEAR:**
- Music 301, 302, 303 (Applied)
- Music 310 (Organization)
- Music 324, 325, 326 (Theory II)
- Music 329, 330, 331 (Orchestration)
- Music Electives (Upper Division)
- Electives (Non-music)

**JUNIOR YEAR:**
- Music 401, 402, 403 (Applied)
- Music 410 (Organization)
- Music 424, 425, 426 (Theory II)
- Music Electives (Non-Music)
- Electives (Non-Music)

**SENIOR YEAR:**
- Music 434, 435, 436 (History of Music)
- Music Electives (Non-Music)
C. CURRICULUM FOR BACHELOR OF ARTS DEGREE WITH A MAJOR IN MUSIC

Talented students who are especially interested in obtaining a broad knowledge of music and music techniques through practical application will elect to follow a course leading to the Bachelor of Arts degree with a major in music. It is not designed for teacher preparation, but provides a liberal arts background for individuals who wish to pursue careers in musicology or the humanities. A minimum of 60 credits (including 30 in music) must be taken in the college of Arts and Sciences. This includes credits in Art and drama.

FRESHMAN YEAR:

Credits per Quarter
Music 101, 102, 103 (Applied) 1.1
Music 110 (Organization) 1.1
Music 111, 112, 113 (Theory I) 3.5
Music 120-121-122 (Introduction to Music Literature) 2.2
General 131-132-133 (Riol. Sci.) 5.5
Health & Physical Educ. 1.0
ROTC 101-102-103 (men) 2.5

SOPHOMORE YEAR:

Music 201, 202, 203 (Applied) 1.1
Music 211, 212, 213 (Theory II) 3.4
Foreign language 5.0
General 134-135-136 (Humanities) 3.5
Health & Physical Educ. 1.0
ROTC 201-202-203 (men) 2.5

JUNIOR YEAR:

Music 301, 302, 303 (Applied) 1.1
Music electives (choice of Orchestration or Composition) 3.5
Foreign language 5.0
Electives from Group I, II, or III 4.5
Electives (non-music) 4.5

SENIOR YEAR:

Music 401, 402, 403 (Applied) 1.1
Music electives (choice of History & Literature or Counterpoint) 3.5
Electives from Group I, II, or III 4.5
Electives (non-music) 7.7

COURSES OF STUDY

In the following course descriptions, * indicates applied music and __ indicates ensemble music.

APPLIED MUSIC

Upon entrance to a regular music course, the student will be given a placement examination and assigned to the course to which his ability, previous training and experience entitle him.

Music 111 (Introduction to the Use of the Piano in Music) Minor. Any quarter, 1 credit. Individual instruction in voice, piano, organ, string or wind instruments. Various curricula provide for secondary study in applied music. Students majoring in music should take at least one course which includes the study of music history in order that he may use this application as a tool rather than as a medium for performance. *Prerequisite: Consent of instructor. May be repeated for a maximum of 6 credits in any one area.

Music 150 (First year)—501, 502, 503 (Second year)—501, 502, 503 (Third year)—601, 602, 603 (Fourth year)

Secondary Applied Major. Any quarter. 1-2. Individual instruction in voice, piano, organ, string or wind instruments. Students majoring in Applied Music (Curriculum II) must show talent for solo performance and evidence of the equivalence of four years’ prior study. *Prerequisite: By audition and consent of instructor.

Music 151-152-153 (First year)—251-252-253 (Second year)—351-352-353 (Third year)—451-452-453 (Fourth year)

Applied Major. Any quarter. 2-4. Individual instruction in voice, piano, organ, string or wind instruments. Students majoring in Applied Music (Curriculum II) must show talent for solo performance and evidence of the equivalence of four years’ prior study. *Prerequisite: By audition and consent of instructor. A senior recital must be given before graduation.

FOR UNDERGRADUATES

911 MUSIC FUNDAMENTALS. 1 Q. A. 0. For freshmen who are lacking in musical training.

110 (10) BAND, ORCHESTRA, CHORAL GROUPS. 3 Q. A. W, S. Su. 1.1.1. Major majors take a minimum of 12 credits; non-music majors take 6 credits. Band: A must have an applied major field which is secondary to their primary major, i.e., Music Education. A student must pass his instrumental audition, and show evidence that he is able to function in four-part writing, analysis, dictation, and keyboard application. A must be able to play the fundamental scales of the major instruments and, in addition, major scales in 2 octaves. All major scales for all instruments must be played in four-part writing, analysis, dictation, and keyboard application. A must be able to play the fundamental scales of the major instruments and, in addition, major scales in 2 octaves. All major scales for all instruments must be played.

111-112-113 (11abc) THEORY I. 3 Q. A. W, S, 3.3.3. Prerequisite: pass satisfactorily music placement examination. The art and science of music structure, including the study of scales, keys, intervals, chords, cadences, melody writing, beginning modulations, and the development of aural skill in analyzing and interpreting music. Topical. 4 credits given in four-part writing, analysis, dictation, and keyboard application. A must be able to play the fundamental scales of the major instruments and, in addition, major scales in 2 octaves. All major scales for all instruments must be played.

114-115-116 (14abc) PIANO IN CLASS. 3 Q. A. W, S. 1.1.1. All major scales in 2 octaves. Chromatic scales are assigned to the left hand. A must be able to play the fundamental scales of the major instruments and, in addition, major scales in 2 octaves. All major scales must be played.


122-123 (22ab) MUSIC EDUCATION IN THE ELEMENTARY SCHOOLS. 3 Q. A. W, S. 1.1.1. The development of the student as a musician for the elementary schools. The emphasis placed on learning by doing, through music of various types. Singing, hearing, study of music, critical, creative, and interpretive; two and three-dimensional visualization, instrumentation, and vocal training. A must be able to play the fundamental scales of the major instruments and, in addition, major scales in 2 octaves. All major scales must be played.

124-125-126 (-125) STRING INSTRUMENTS IN CLASS. 3 Q. A. W, S. 1.1.1. To enable music education majors to gain knowledge and understanding of the instruments of the string family. A must be able to play the fundamental scales of the major instruments and, in addition, major scales in 2 octaves. All major scales must be played.

129 (-29) WIND AND PERCUSSION INSTRUMENTS IN CLASS. 3 Q. A. W, S. 1.1.1. Students may enter any quarter. To enable music education majors to gain knowledge and understanding of the instruments of the wind and percussion families. A must be able to play the fundamental scales of the major instruments and, in addition, major scales in 2 octaves. All major scales must be played.

130 (10) INTRODUCTION TO CONDUCTING. 1 Q. A. W, S. 2.2.1. An introduction to the concept of conducting in order to take the individual music conductor. *Prerequisites: Must be a member of the Band, Orchestra, Choral Group, or have at least 2 years of experience as a choral or band director. A must be able to play the fundamental scales of the major instruments and, in addition, major scales in 2 octaves. All major scales must be played.

131-132-133 (13abc) MUSIC APPRECIATION FOR THE CLASSROOM. 3 Q. A. W, S. 1.1.1. Designed for the teacher of music in the elementary schools. The emphasis placed on learning by doing, through music of various types. Study of music and its effects on society, and the development of the student as a musician for the elementary schools. The emphasis placed on learning by doing, through music of various types. Singing, hearing, study of music, critical, creative, and interpretive; two and three-dimensional visualization, instrumentation, and vocal training. A must be able to play the fundamental scales of the major instruments and, in addition, major scales in 2 octaves. All major scales must be played.
SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PHARMACY. A candidate for admission to the senior year in the professional curriculum may not have a grade point deficiency of 0.5 or more. A grade point deficiency of 0.5 or more will not be granted senior standing and will be required to retake such courses, with a maximum of two times, until he has reduced his grade point deficiency to 0.5 or less. 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.

REQUIREMENTS FOR LICENSURE IN MONTANA. An applicant for licensure as a Registered Pharmacist in Montana must pass an examination by the Board of Pharmacy. To be qualified for this examination, the applicant shall be a citizen of the United States, over twenty-one years of age, a graduate of a pharmacy school accredited by the American Council on Pharmaceutical Education, and shall be a graduate of an accredited school of pharmacy. However, such an applicant shall not receive a license until he has completed an internship of at least one year, following graduation, in an approved pharmacy in the state of Montana.

GRADUATE STUDY. Candidates for the degree of Master of Science in Pharmacy must comply with the governing graduate study and must complete a program satisfactory to the faculty of the School of Pharmacy.

PHARMACY CURRICULUM

First year: Microbiology 303-304; Business Administration 201; Pharmacy 306, 314, 320, 324-325, 352, 361; and Zoology 340-341.

Second year: Business Administration 360; Chemistry 384; Health and Physical Education 196; Pharmacy 414-415-418, 428, 441, 452, 462, 463; and electives.

Third year: Pharmacy 303, 505-506, 516, 517-519, 540-541-542, 550, 577; and electives.

FOR UNDERGRADUATES
306 (26) HISTORY OF THE PHARMACY TRADE. 1 Q. A. 3 (3-0). Historical evolution of pharmacy, scope of present day pharmacy practice, and the professional and ethical principles which guide the practice of pharmacy.

314 (14) INORGANIC PHARMACEUTICAL CHEMISTRY. 1 Q. A. 4 (3-4). Prerequisite: Chemistry 263 or equivalent. The inorganic chemicals of medicinal and pharmaceutical importance. Laboratory work on official identity and purity tests and incomparabilities.

320 (24a) PHARMACEUTICAL PHYSICS I. 1 Q. W. 3 (2-3). Prerequisite: Botany 130 and Chemistry 263 or equivalent. The plant and animal products used in pharmacy and medicine.

322 (58) DRUG ANALYSIS I. 1 Q. W. 3 (2-1). Prerequisite: Chemistry 263 or equivalent. The organic medicinals with emphasis on proof of structure, synthetic procedures, structure-activity relationships, etc.

361 (21a) OPERATIVE PHARMACY. 1 Q. S. (2-3). Prerequisite: Pharmacy 230. Fundamental techniques and processes and the various classes of pharmaceutical preparations. Pharmacy 314. Quantitative analysis of official drugs and preparations according to the methods of the U.S.P. and N.F.


426 (24c) PHARMACOGNOSY. 1 Q. A. 3 (2-2). Prerequisite: Pharmacognosy 1. A continuation of 322.

430 (130) MANUFACTURING PHARMACY. 1 Q. On demand. 3 (1-6). Prerequisite: Pharmacy 463. Methods and techniques employed in the formulation and production of pharmaceuticals.

441 (141) BIOASSAY. 1 Q. S. (0-6). Prerequisite: Zoology 341. The evaluation of the potency of drugs by biological means.


463 (121) PHYSICAL PHARMACY. 1 Q. W, S. 3 (3-4). Prerequisite: Pharmacy 361 and 462. The application of physical chemical principles and laws to the preparation and study of pharmaceutical products.

468 (102) MEDICINAL PLANTS. 1 Q. On demand. 2 (0-6). Prerequisite: Pharmacy 361 or equivalent. Physiology, ecology, collection, identification, drying, garbling, milling of crude drugs.

470 (104) IDENTIFICATION OF MEDICINAL PLANTS. 1 Q. On demand. 2 (0-6). Prerequisite: Pharmacy 361 or equivalent. The herbarium study of medicinal plants.

472 (123) DRUG MICROSCOPY. 1 Q. On demand. 2 (0-4). Prerequisite: Senior standing in pharmacy and a good knowledge of the microscopic and microchemical examination of drugs, foods and spices. The detection of adulterants and impurities and the composition of drugs.

476 (107) COSMETICS. 1 Q. On demand. 3 (1-6). Prerequisite: Pharmacy 463. The theory and technic of cosmetic formulation.

506 (159) ADVANCED PHARMACY 1. 1 Q. On demand. 3 (1-4). Prerequisite: Pharmacy 452. The more involved methods of analysis as applied to pharmaceuticals.

505-506 (158a) DISPENSING. 2 Q. A, W, 4. 2 (4-6). Prerequisite: Pharmacy 463. The fundamental principles of prescription compounding by means of a detailed study of the common dosage forms and special forms of medication. Fundamental principles involved in formulation.

516 (196) PHARMACEUTICAL LAW. 1 Q. A. 3 (0-6). Prerequisite: senior standing in Pharmacy. State and federal laws pertaining to the practice of pharmacy.

517-518-519 (197abc) PHARMACEUTICAL PRACTICE. 3 Q. A, W, S. 2,2,2 (6-6). Prerequisite: senior standing in pharmacy. Students are assigned to the Montana State University Prescription Pharmacy and to various pharmacies in Missoula in order to acquaint them with current retail practice.

530 (150) ADVANCED MANUFACTURING PHARMACY. 1 Q. On demand. 3 (0-9). Prerequisite: Pharmacy 468. The more complex production techniques.

540-541-542 (140abc) PHARMACOLOGY. 3 Q. A, W, S. 4,4,4 (3-3). Prerequisites: senior standing in pharmacy, and Zoology 341 or equivalent. The pharmacodynamics of drugs and its application to therapeutics.

575 (142) TOXICOLOGY. 1 Q. S. on demand. 3 (2-4). Prerequisite: Pharmacy 541. Emergency procedures for the treatment of poisoning, characteristics of the more common poisons, and the recognition and identification of poisons.

577 (177) PHARMACY ADMINISTRATION. 1 Q. S. 4 (3-2). Prerequisite: senior standing in pharmacy. The management of a retail pharmacy with emphasis on the professional problems of the drug store.

599 (199) SPECIAL PROBLEMS IN PHARMACY. Any quarter. 2-5 (0-3/er.). Prerequisite: senior standing in pharmacy. Research studies by conference, library and laboratory research in pharmacy, pharmaceutical chemistry, pharmacognosy, or pharmacology. Total credit allowed: 10.

FOR UNDERGRADUATES AND GRADUATES
550 (175) ANIMAL HEALTH PHARMACY. 1 Q. W. 3 (3-0). Prerequisite: Pharmacy 540. Pharmaceuticals used in the treatment of diseases of animals.

553 (176) PESTICIDES. 1 Q. S. 3 (3-0). Prerequisite: Pharmacy 416 or consent of instructor. Fungicides, herbicides, insecticides, rodenticides, and miscellaneous pest control methods and materials.

592-593 (192a) HOSPITAL PRACTICE. 1-2 Q. On demand. 1-3 (0-2/er.). Prerequisite: Pharmacy 565. Participation in the routine of a hospital pharmacy.

598 (198) PHARMACY SEMINAR. Any quarter. 1 (1-0). Prerequisite: senior standing in pharmacy. Total credit allowed: 6.

FOR GRADUATES
601 (201) RESEARCH IN PHARMACEUTICAL CHEMISTRY. 1 Q. Any quarter. 3 (0-3/er.).

605 (205) ALKALOIDS. 1 Q. Any quarter. 4 (3-3). Prerequisite: Pharmacy 416 or equivalent. Structure, synthesis, isolation, identification, and uses of alkaloids.

606 (206) ADVANCED PHARMACOGENOSTICAL TECHNICS. 1 Q. Any quarter. 3 (0-9). Prerequisites: Pharmacy 466; and Botany 334 and 335. Techniques used in investigative pharmacognosy.

607 (207) STEROLS, TERPENES, AND VOLATILE OILS. 1 Q. Any quarter. 3 (3-0). Prerequisite: Pharmacy 416 or equivalent. Occurrence, preparation, isolation, and chemistry of the sterols, terpenes, and volatile oils.

608-609-610 (214abc) ADVANCED ORGANIC MEDICINAL PRODUCTS. 3 Q. A, W, S. 3-3-3 per quarter (3 to 9). Given in alternate years. The organic medicinals with emphasis on proof of structure, synthetic procedures, structure-activity relationships, etc.

619 (209) ADVANCED PHARMACOLOGY. 1-3 Q. Any quarter. 3-3. Prerequisite: Pharmacy 542 or equivalent. The more involved actions of drugs, idiosyncrasies, and poison control.

620 (210) ADVANCED PHARMACY. 1-3 Q. Any quarter. 3-3. Prerequisite: Pharmacy 546 or equivalent. The more complex problems involved in formulation and preparation of pharmaceuticals.

696 (299) THESIS. Any quarter. Credit variable. Total credit allowed: 15.

698 (299) THESIS. Any quarter. Credit variable. Total credit allowed: 15.
PHILOSOPHY is the study of man's ideas, past and present, in the fields of metaphysics, ethics, political theory, religious belief, logic and scientific method, and aesthetic appreciation; the aim of philosophical study is the development of critical ability and intellectual perspective.

Fours years are required for a Bachelor of Arts degree. Philosophy courses consist mainly in preparation with the aid of text books and readings for classroom lectures and discussions.

Since the aim of courses in Philosophy is cultural rather than economic or professional, those who specialize in that field have limited career opportunities other than for advanced studies and teaching in institutions of higher education. Philosophy is recommended as preparation for the study of law and for theological seminary.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PHILOSOPHY. In addition to the general requirements for graduation listed earlier in the guidebook, the following special requirements must be completed for the Bachelor of Arts degree with a major in Philosophy: a minimum of 45 credits, including the general requirements for graduation listed earlier in the guidebook, a minimum of 25 credits in one foreign language.

Since the aim of courses in Philosophy is cultural rather than economic or professional, those who specialize in that field have limited career opportunities other than for advanced studies and teaching in institutions of higher education. Philosophy is recommended as preparation for the study of law and for theological seminary.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PHILOSOPHY. In addition to the general requirements for graduation listed earlier in the guidebook, the following special requirements must be completed for the Bachelor of Arts degree with a major in Philosophy: a minimum of 45 credits, including the general requirements for graduation listed earlier in the guidebook, a minimum of 25 credits in one foreign language.

PHILOSOPHY-LAW COMBINATION PROGRAM. In addition to the general requirements for graduation listed earlier in the guidebook, the following special requirements must be completed for the Bachelor of Arts degree with a major in Philosophy: a minimum of 45 credits, including the general requirements for graduation listed earlier in the guidebook, a minimum of 25 credits in one foreign language.

FOR UNDERGRADUATES

100 (55) INTRODUCTION TO PHILOSOPHY. 1 Q. A. W. S. Su. 5. The main problems of metaphysics, theory of knowledge, and moral philosophy; the manner in which great philosophers reach their conclusions.

120 (50) LOGIC. 1 Q. A. S. 5. The valid forms of reasoning, the methods of science, and the detection of fallacies.

130 (51) ETHICS. 1 Q. A. W. 5. Inquiry into the nature of moral values, the standards of moral judgment, and the moral problems arising in personal life and in social relations.

201 (52a) HISTORY OF ANCIENT PHILOSOPHY. 1 Q. A. 5. Greek, Roman, and early Christian thinkers; the manner in which great philosophers reach their conclusions.

203 (52c) HISTORY OF MODERN PHILOSOPHY. 1 Q. A. 5. Prerequisite: Philosophy 201 or consent of instructor. Total credit allowed toward graduation: 9.

210 (53) SYMBOLIC LOGIC. 1 Q. W. 5. Introductory theory and practice in symbolic logic. Translation of arguments from ordinary language into symbols; testing validity by the methods of formal or mathematical logic.

FOR UNDERGRADUATES AND GRADUATES

201-302 (10ab) GREC. PHILosophERS. 3 Q. A. W. Su. 1,1,1, S. (Entire course given in the summer as 304). Students may enter any quarter. Weekly lectures by members of the staff in English, Greek, Roman and early Christian thinkers. (301) late medieval, renaissance, and some modern thinkers; (303) recent and contemporary thinkers. Not open to Philosophy majors for graduate credit.

320 (102) MODERN ETHICS. 1 Q. W. 5. Prerequisite: Philosophy 120. An examination of theories put forward in recent times on the nature of moral concepts. Tendencies of ethical thought to be studied will include naturalism, intuitionism, emotivism, and existentialism.

321 (151) SOCIAL ETHICS. 1 Q. A. Su. 3. Prerequisite: Philosophy 120. An examination of theories put forward in recent times on the nature of moral concepts. Tendencies of ethical thought to be studied will include naturalism, intuitionism, emotivism, and existentialism.

322 PHILOSOPHY OF LAW. 1 Q. A. 5. Prerequisite: 5 credits in Philosophy. Analysis of the fundamental concepts of law in their relation to individual freedom and to social order: philosophical justification of different forms of authority.

328 PHILOSOPHY IN THE TWENTIETH CENTURY. 1 Q. A. 5. Prerequisites: Philosophy 201, 202 and 203.

330 (156) PHILOSOPHY OF LANGUAGE. 1 Q. A. 5. Prerequisites: Philosophy 201, 202 and 203.

331 PHILOSOPHY IN LITERATURE. 1 Q. A. W. 5. Prerequisite: 10 credits in literature or philosophy or equivalents. Philosophical evaluation of leading ideas in selected masterpieces of literature in the classical and modern traditions.


351 (157) METAPHYSICS. 1 Q. W. 5. Prerequisite: Philosophy 201, 202 and 203. Theories of reality including study of such fundamental concepts as being, form, substance, causation, universal, particular, and process.

352 PHILOSOPHY OF LANGUAGE. 1 Q. A. 2. Prerequisites: 5 credits in Philosophy and consent of instructor. Recent investigations into the structure of ordinary and ideal languages as systems of signs and of resulting conclusions for Philosophy. Given even numbered years.

353 (158) CONTEMPORARY PHILOSOPHIES OF SCIENCE. 1 Q. A. 5. Prerequisite: 5 credits in Philosophy. History and critical study of the main tenets of contemporary scientific empiricism. Given even numbered years.

354 (159) PHILOSOPHY OF RELIGION. 1 Q. W. 5. Prerequisite: 5 credits in Philosophy. Philosophical interpretations of religious experience, belief and practice. Given even numbered years.

356 FIATO. 1 Q. W. 3. Prerequisite: Philosophy 201. Reading and interpretation of selected works. Given even numbered years.

357 DESCARTES, SPINOZA, LIEBINZ. 1 Q. A. 5. Prerequisite: Philosophy 203. The development of Continental Rationalism. Given even numbered years.

358 LOCKE, BERKLEY, HUME. 1 Q. W. 5. Prerequisite: Philosophy 203. The development of British Empiricism. Given odd numbered years.

359 KANT. 1 Q. W. 5. Prerequisite: Philosophy 203. Reading and interpretation of selected works. Given odd numbered years.

361 ARISTOTLE. 1 Q. A. 3. Prerequisite: Philosophy 203. Dialectical idealism (Hegel) and dialectical materialism (Marx). Given even numbered years.

362 PHILOSOPHICAL LIBERALISM. 1 Q. A. 2. Prerequisite: 10 credits in Philosophy. Origin and development of the chief concepts of the tradition of liberalism, such as personal worth, liberty, tolerance, civil rights, public discussion, the general welfare, social criticism, and protest against exploitation. Given odd numbered years.

363 IDEALISM. 1 Q. A. 3. Prerequisite: 15 credits in Philosophy. Recent British and American idealist philosophies. Given even numbered years.

364 REALISM. 1 Q. W. 3. Prerequisite: 15 credits in Philosophy. Twentieth century and earlier materialist philosophies. Given odd numbered years.

365 PRAGMATISM. 1 Q. S. 3. Prerequisite: 15 credits in Philosophy. Given even numbered years.

366 DESCARTES, SPINOZA, LIEBINZ. 1 Q. W. 5. Prerequisite: Philosophy 203. Dialectical idealism (Hegel) and dialectical materialism (Marx). Given even numbered years.

367 EXISTENTIALISM. 1 Q. W. 3. Prerequisite: 5 credits in Philosophy. Selected readings from the works of prominent existentialist thinkers. Given even numbered years.

420 (194) SEMINAR: THEORY OF VALUES. 1 Q. A. 5. Prerequisite: 5 credits in Philosophy and consent of instructor. Total credit allowed toward graduation: 9.

421 SEMINAR: PHILOSOPHICAL PRESUPPOSITIONS OF POLITICAL INSTITUTIONS. 1 Q. W. 5. Prerequisite: Philosophy 222 or Political Science 351. Given even numbered years.

422 SEMINAR: PHILOSOPHICAL THESIS. 1 Q. S. 3. Prerequisites: 15 credits in Philosophy and consent of instructor. Given odd numbered years.

451 SEMINAR: METAPHYSICS. 1 Q. S. 3. Prerequisites: 15 credits in Philosophy and consent of instructor. Given odd numbered years.

452 (192) SEMINAR: DEFINITION AND TRUTH. 1 Q. W. 3. Prerequisites: 15 credits in Philosophy and consent of instructor. Given odd numbered years.

453 (193) SEMINAR: PHILOSOPHY OF SCIENCE. 1 Q. A. 3. Prerequisites: 15 credits in Philosophy and consent of instructor. Given odd numbered years.

454 (192) SEMINAR: COSMOLOGY AND RELIGION. 1 Q. A. 3. Prerequisites: 15 credits in Philosophy and consent of instructor. Given odd numbered years.

455 (197) SEMINAR: PHILOSOPHY OF SCIENCE. 1 Q. A. 3. Prerequisites: 15 credits in Philosophy and consent of instructor. Given odd numbered years.

456 (192) SEMINAR: EXPERIENCE AND INTUITION. 1 Q. A. 3. Prerequisites: 15 credits in Philosophy and consent of instructor. Given odd numbered years.

699 (299) THESIS. Any quarter. Credit variable. Total credit allowed: 15.

500 (201) RESEARCH. Any quarter. Credit variable. Work on selected problems under direction. Total credit allowed: 15.

699 (299) THESIS. Any quarter. Credit variable. Total credit allowed: 15.

President Carl McFarland Confers Honorary LL.D on Russ B. Hart
PHYSICAL SCIENCES are those sciences which concern themselves primarily with the inanimate aspects of man's environment—the fields of Astronomy, Chemistry, Geology, Mathematics, and Physics.

Four years are required for the degree of Bachelor of Arts. During the first two years the student has the opportunity to study in all five fields. In the junior and senior years the student takes advanced work in the area of his choice. Since more advanced mathematics is necessary for adequate understanding of modern physics, students who choose that field must complete calculus.

This program enables the student to gain broad insight into these related areas of the physical sciences as well as to do some intensive work in one or more of them.

Students completing this program are prepared for beginning positions in industry or for work toward more advanced degrees. Those electing to teach may qualify to do so by taking the required courses in education and completing courses to meet requirements in a field taught in high schools in addition to the area chosen for intensive work.

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 a foreign language.

Physics is the basic science out of which have come many discoveries as the structure of atoms, artificial radioactivity, and the production of atomic energy as well as radar, television, guided missiles, and jet planes. The physicist regards physics as the science that has to do primarily with energy, its interactions with matter, and its transformation. The laws and theories of physics show how mechanical energy is converted into electrical energy, how heat is formed, how sound waves can modulate radio waves, and how even matter itself is converted into "atomic" energy. Knowledge of physics is valuable to engineers, doctors, and scientists of all kinds. It appeals in a non-technical way to the philosophically minded who recognize that physics has modified man's thinking about the universe and time.

Four years are required to earn the Bachelor of Arts degree. The Master of Arts (or Master of Science) degree is also offered (see Graduate Studies). The undergraduate curriculum requires the ability and will to think logically, write well, and undertake rigorous study. Much work in mathematics is required as well as in chemistry. Courses include elementary studies with the use of textbooks and classroom instruction; and also in modern laboratory work and demonstration. Those who specialize in Physics, and desire to follow it as a profession, are very likely to pursue graduate studies usually through work leading to the doctorate degree.

Positions for physicists are plentiful, pay good salaries, and offer wide choices. Larger industrial organizations as well as food, drug, rubber, paper and fabric makers require well-trained and able physicists to do research on their methods and products. The federal government employs a large number of physicists, mostly in research for the Bureau of Standards, the Atomic Energy Commission, the Department of Defense, the Department of Agriculture, the Weather Bureau, and the Public Health Service. Non-governmental scientific foundations and organizations offer support research. Colleges and universities have need for qualified physicists to teach or to combine research with teaching.

Physics 111-112-113 or 221-222-223 ..................................
Physics 314-315, 322, 346, 352 (requires Math 252)    25
Geology 201-202-203 or 211-212, 220, 310 ....................... 15
Mathematics 251, 252, 309, 311-312 ...   _____ 16
Astronomy  _ ______________________ _ ___ ____. ____

Major Requirements
Mathematics through Analytical Geometry or Math 151
Chemistry 121-122-123 ............................................. 15-17
Physics 111-112-113 or 221-222-223 .................................. 15
Geology 110, 120-123-126 ......................................... 15

Fifteen credits from one of the following sequences
Mathematics 251, 252, 309, 311-312 (requires Math 232) 16
Physics 314-315, 322, 346, 352 (requires Math 232) 16
Chemistry 245, 290 or 251-252-253, 370 15-17
Geology 201-202-203 or 211-212, 220, 310 15
POLITICAL SCIENCE and History are combined in a single department for administrative purposes, but a student may earn a degree in either field or in a combination of up to two. Each subject has subdivisions in which the student may specialize. The Political Science major must present credit in the following fields: American Political Institutions, Comparative Government, International Affairs, Public Administration, Public Law, and Political Theory.

The department offers the Master of Arts degree in Political Science which involves an acceptable thesis based on original research.

To the student who is in search of a broad educational background, Political Science offers a program calculated to provide knowledge and understanding of the origins, development, present status and future possibilities of international, national, and local governmental problems with the object of aiding him to become an effective citizen. To the career person there is opportunity to study the practical as well as the theoretical in government, administration and politics each in its various functions and at its several levels.

These courses of study are designed to prepare men and women for either the domestic or the foreign service of the federal government and for positions in state and local government. It aids in preparing students for professional careers with citizen agencies concerned with government or public relations such as research bureaus, community chests, chambers of commerce, and labor unions. Recommended graduates of the department, and those who wish to work by universities in the United States and in Europe and they frequently receive valuable fellowships or scholarships. Many have gone to distinguished careers in teaching, and have become research scholars. The department is well equipped to aid in the study of American and international cooperation with particular reference to the United Nations.

Professor of Political Science 202-203 is required, with 20 credits from courses numbered over 300 and including Political Science 491, History 391, and History 392, and in History. A minimum of 20 credits must be selected from courses numbered over 300 including either Political Science 491 or History 491.

All students majoring in Political Science will complete the integrated introductory sequence 101, 202-203 leaving free approximately seven hours per quarter for the completion of all other requirements.

Upper division work in Political Science is offered in American Political Institutions, Comparative Government, International Affairs, Public Administration, Public Law, and Political Theory. 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, 203, 204, 305, 361, and 311. At least 12 additional credits will be chosen from upper division Economics courses and 15 additional credits from Political Science. Twelve hours of the Political Science work must be in upper division courses. All graduating seniors will take comprehensive examinations in the fields of Political Science offered.

Either Political Science 491 or Economics 303 will be required.

Either the completion of five quarters of a foreign language or the demonstration of a knowledge of either international, legal or political science materials in such a language is required. With the consent of the Chairman of the Department, a student may fulfill the language requirement by completing three quarters in each of two languages.

In the final year of the Department, each major must pass a senior comprehensive examination.

With permission of the Chairman of the Department, majors may offer credit in Political Science 304, 305, 361, and 362 as required. Highly recommended courses in lieu of or in addition to the above, electives may be chosen from Economics 304, 305, and History 306. Political Science 311, 353, 356, 372, 387, 388, 389, 391, and History 371 and 372, depending on the student's preparation and objectives.

FOR UNDERGRADUATES

101 (14) INTRODUCTION TO GOVERNMENT, 1 Q. S. Su. 4. Comparative study of fundamental political institutions of modern society, including economic, legal, political, and social institutions, presidents, executives, and courts.

201-203 (17ab) AMERICAN GOVERNMENT, 2 Q. A. W. Su. 4, 4. The underlying constitutional principles of the American national government. The democratic political processes, including public opinion, voting, interest groups, and elections. The structure of the American national government, congress, the national political parties and the federal and state government, including finance, business, labor, agriculture, conservation, welfare, national defense, and foreign policy. Selected problems of national and international emphasis for adjustment of conflict.

231 (60) INTERNATIONAL RELATIONS, 1 Q. S. Su. 4. A general introduction to the nation-state system, intrastate and interstate politics including power, role of arms, tension, legal and institutional devices for adjustment of conflict.

241 (45) POLITICAL PARTIES AND ELECTIONS, 1 Q. W. Su. 3. Prerequisite: Political Science 202-203. The American party system, the organization and work of American political parties, the conduct and control of nominations and elections, and some comparisons with the composition and processes of European political parties.

FOR UNDERGRADUATES AND GRADUATES

214 (124) INTERNATIONAL ORGANIZATIONS, 1 Q. A. Su. 3. Prerequisite: Political Science 201 or 202. The international cooperation with particular reference to the United Nations.

232-333 (106ab) INTERNATIONAL PUBLIC LAW, 2 Q. A. W. 3, 3. Prerequisite: 8 cr. in the law classes in relation to peace, war and collective security.

239 (Hist. 140) MODERN WAR AND WESTERN SOCIETY, 1 Q. S. Prerequisite: Political Science 201 or 202. A history of warfare from the French Revolution. Emphasis is placed on relationships of governments to military, on problems of strategy, and on theories of war.

341 PRESSURE GROUP POLITICS, 1 Q. S. 3. Prerequisite: Political Science 241. The role and activities of interest groups in a democracy. The interaction of interests with public opinion, political parties, and government. The relationship of business to government and public opinion.

351-352 (115ab) THE DEVELOPMENT OF POLITICAL THOUGHT. 2 Q. A. W. 4, 4. Prerequisites: Political Science 101 or 203. (351) The development of Western political thought from the early modern period to the nineteenth century. (352) Western political thought from its early modern roots to the twentieth century.

361-362 (116ab) AMERICAN POLITICAL THOUGHT. 1 Q. S. 4. Prerequisite: Political Science 101 or 203. American political thought, both systematic and normative, theories of government and other basic concepts.

361-362 (116ab) PUBLIC ADMINISTRATION, 2 Q. A. W. 4, 4. Prerequisite: Political Science 101 or 203. (361) The structure of the American system of public administration, its constitutional, legal, and political setting. The processes of public administration including problems related to administrative agencies; (362) Problems and techniques of public administration illustrated through the study of case materials.

363-364 (118ab) TOTALITARIAN GOVERNMENTS, 2 Q. A. W. 3, 3. Prerequisite: Political Science 101. The structure and development of totalitarian type systems; (363) Economic and political aspects of totalitarian systems and to European personnel systems.

365 (136) GOVERNMENT REGULATION OF BUSINESS, 1 Q. S. 3. Prerequisite: Political Science 361. American system of public personnel administration; recruitment, selection, promotion, training, classification, and services. Theories and practices of personnel administration.

366 (137) MANAGEMENT OF PERSONNEL, 1 Q. S. 3. Prerequisite: Political Science 361. American system of personnel administration; recruitment, selection, promotion, training, classification, and services. Theories and practices of personnel administration.

371-372 (135ab) THE AMERICAN CONSTITUTIONAL SYSTEM, 1 Q. W. S. 3, 3. Prerequisite: Political Science 201 or 202. The constitution of the United States in the jurisprudence of the Supreme Court.

373 (134) PRINCIPLES OF ADMINISTRATIVE LAW, 1 Q. W. 3. Prerequisite: Political Science 371 or 362. Administrative law in the United States with reference to other countries. Administrative agencies, their scope and their powers, remedies, judicial control of administrative action.

381 STATE GOVERNMENT, 1 Q. A. 3. Prerequisite: Political Science 201 or 202. Structure, functions and operations of state government; relation of states to other units of local government; administration and organization of state government including constitutional reforms. Special attention to Montana.

383 MUNICIPAL GOVERNMENT, 1 Q. S. 3. Prerequisite: Political Science 201 or 202. Legal bases of municipal government; home rule; mayor-council, commission, and council-manager plans, municipal services, internal government, personnel functions, problems of organization and planning.

387-388-389 (143abc) PROBLEMS OF MONTANA GOVERNMENT, 1 Q. W. S. 3, 3, 3. Prerequisite: Political Science 201 or 202. Problems of the constitution of the state of Montana and of its administration, including constitutional reforms. Special attention to Montana.

395 (190) SPECIAL STUDIES IN POLITICAL SCIENCE, 1 Q. W. S. 1-2. Total credit allowed: 4. Prerequisite: Political Science 203 or 201 and consent of instructor. Selected aspects of
politics, government or international affairs. Offered by different instructors under various titles.

**206** (100) AMERICAN POLITICAL PROBLEMS, 1 Q. A. 4. Su. 3.
Prerequisite: Political Science 203 or History 236. Present day problems such as governmental reorganization, taxation, and budget, states rights, and powers of Congress and the Chief Executive.

**207** (100) PRESENT WORLD PROBLEMS, 1 Q. A. Su. 3.
Prerequisite: 150. Open to departmental majors only. Methods of investigation, evaluation and synthesis in Political Science with a survey of the technical literature on the subject. Students who have secured credit in History 206 may not register for this course.

### FOR GRADUATES

595 (203) SEMINAR IN POLITICAL SCIENCE, 1 Q. A. W. S. Su.
Cr. variable. Prerequisites: 30 cr. in the Department and Political Science 491. Special problems in political science. Total credit allowed: 10.

699 (299) THESIS. Any quarter. Cr. variable. Total credit allowed: 15.

### PRE-MEDICAL SCIENCES

*Pre-medical Sciences are designed for students who wish to prepare for entry into medical and dental schools. Medical schools require three years of such training and in most cases prefer four. For the latter the University offers the degree of Bachelor of Arts with a major in pre-medical sciences, the curriculum for which is described below. However, pre-medical students may take their related science courses as long as they are careful to include the required courses. These requisites have been standardized by the medical profession and its governing or licensing boards and representatives. They require primarily basic sciences (Chemistry, Mathematics, Physics, and Zoology) as well as a modern foreign language literature, psychology, and social studies. An equally important prerequisite is superior scholastic standing since medical and dental schools are selective in their applicants for admission; for which reason as well as the exacting nature of those professions, high scholarship is a prime qualification.*

### HIGH SCHOOL PREPARATION

In addition to the general requirements for admission to the University, the student needs algebra and geometry, and preferably also advanced algebra, and trigonometry. It is also recommended that the high school preparation include one year each of French or German and considerable background in literature and social studies.

### 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 minimum course requirements in the sciences, has demonstrated competency, and has a relatively well-balanced personality. Since not all institutions accepted by medical schools are accepted, the pre-medical student is urged to plan his own University career with that idea in mind.

### MINIMUM REQUIREMENTS FOR THE PRE-MEDICAL SCIENCES STUDENT

English, Phys. Ed., M. Sci. Group, and certain University requirements listed earlier in the guidebook; Chemistry through Organic Chemistry and Quantitative Analysis; Mathematics through Mathematics 113; One year of college physics; Zoology through Comparative anatomy and embryology. (Genetics is recommended; A reading knowledge or 55 credits in French or German.

### SPECIAL REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE WITH A MAJOR IN THE PRE-MEDICAL SCIENCES

Satisfy the minimum course requirements listed immediately above. Plus: Psychology 5-10 credits; Physical Chemistry; 15 credits in Chemistry 101-102-103 or 150-151; Organic Chemistry; or any approved combination of the above; and additional electives selected from the non-sciences to complete University credit requirements for graduation.

Students who complete 125 credits of pre-medical work (plus six credits of Physical Education) at Montana State University, complete all requirements for the B. A. degree with a major in the medical sciences and present evidence of satisfactory completion of the first year of medical school may be granted a B. A. degree in the Pre-medical Sciences.

### PRE-MEDICAL SCIENCES CURRICULUM

(Medicine, Dentistry, Veterinary Medicine)

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>A</th>
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<tbody>
<tr>
<td>English 104-105</td>
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<td>Chemistry 121-122</td>
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<td>Zoology 110</td>
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<tr>
<td>Health &amp; Phys. Ed. 101-102-103</td>
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<td>Sophomore Year</td>
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<tr>
<td>Zoology 104-105</td>
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<td>Zoology 201 Comparative Vert. Anatomy</td>
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<td>Foreign Language 101, 102, 103 (Fr. or Ger).</td>
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<td>Chemistry 201-202 Organic Chemistry</td>
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### PSYCHOLOGY

Psychology is the science concerned with principles of human behavior. It deals with problems of motivation, emotion, perception, learning, thinking, imagination and intelligence. Four years are required for a Bachelor of Arts degree. A Master of Arts degree is also offered (see Graduate Study).

Two programs lead to the MA degree: (1) a program in general and theoretical psychology, requiring a minimum of one school year of graduate study; and (2) a program in clinical psychology, requiring a minimum of two school years of graduate work.

Minimum preparation for professional work in psychology requires an MA degree, and full professional competence requires the Ph. D. degree. The fully trained student may select from a variety of positions in clinics, hospitals, schools and colleges, business and industry, and governmental agencies. At present and in the foreseeable future, the number of jobs far exceeds the number of trained persons who can fill them.

### SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PSYCHOLOGY

In addition to the general requirements already mentioned, the following special requirements must be completed for a Bachelor of Arts degree with a major in psychology: at least 45 credits in psychology including Psychology 110, 210, 211, 212, 498, and 411 with at least 25 credits in psychology courses numbered above 299; and a reading knowledge of one modern language. Other courses recommended for psychology majors include Mathematics 125; Philosophy 310 and 353; and Zoology 101 or 202.

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<th>Freshman Year</th>
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<tbody>
<tr>
<td>Psychology 110—Introduction to Psychology</td>
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<td>Mathematics 106—Intermediate Algebra</td>
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<td>Mathematics 125—Statistics</td>
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<td>Modern Language 101-102-103</td>
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<tr>
<td>English 104-105—Language in Action</td>
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<tr>
<td>PE 101-102-103—Physical Education</td>
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<td>MS 101-102-103—Military Science (Men)</td>
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<td>Sophomore Year</td>
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<td>17</td>
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<tr>
<td>Psychology 210—211—212—General Psychology</td>
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<td>Modern Language 213—Comparative Language</td>
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<td>Psychology 220—Psychological Statistics</td>
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<td>Psychology 249—Social Psychology, or History</td>
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<td>PE 201-202-203—Physical Education</td>
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<td>MS 201-202-203—Military Science (Men)</td>
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<td>Junior Year</td>
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<td>Choice of 300—level Psychology courses</td>
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<td>Philosophy 310 or Elective</td>
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<td>Zoology 202—Human Physiology</td>
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<td>15-17</td>
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410 HISTORICAL PSYCHOLOGY. 1 Q. W. 3 (3-0). Prerequisites: Psychology 210-211-212. Historical development of concepts, methods, and theories in psychology.

411 (104) SYSTEMATIC PSYCHOLOGY. 1 Q. S. 3 (3-0). Prerequisites: Psychology 210-211-212. Evaluation of the major psychological systems; Structuralism, Functionalism, Behaviorism, Gestalt, Psychoanalysis, etc.

440 SURVEY RESEARCH. 1 Q. S. 5 (3-4). Prerequisite: Psychology 240. Theory and methods of survey research, with review of the areas of application. Laboratory work will include the conduct of a complete survey, with special attention to problems of questionnaire construction, sampling methods, and analysis.

460 (128) THEORIES OF PERSONALITY. 1 Q. S. 3 (3-0). Prerequisites: Psychology 210-211-212. Current theories of personality and the experimental evidence on which they are based.

470 (130b) PROJECTIVE TECHNIQUES. 1 Q. S. 3 (2-2). Prerequisite: Psychology 361. Theoretical bases of projective and misperceptives tests; general survey of existing projective techniques, including Rorschach, TAT, drawing tests, association tests, and others.

511 (131) CLINICAL PSYCHOLOGY. 1 Q. A. S. 3 (3-0). Prerequisites: Psychology 351-352-353 and 470. General introduction to the field of clinical psychology, its problems, techniques, and professional functions. Introduction to problems of psychological diagnosis and psychotherapy.

590 PROBLEMS IN PSYCHOLOGY. 1 Q. Any quarter. Critical explorations in selected areas of psychology. Topics of current interest with critical examination of the literature. Total credit allowed: 6.

550-551-552 (132) INDIVIDUAL APITUDE TESTING. 3 Q. A. W. S. S. 3, 3, 3 (1-4). Prerequisites: Psychology 230 and permission of instructor. Selected topics. 

550-551-552 PERSONNEL PSYCHOLOGY. 1 Q. S. 3 (3-0). Prerequisite: Psychology 110. Psychological principles in personnel; development of personnel aids in selection, classification and training of personnel; psychological techniques in worker efficiency and adjustment problems.

531 ADVANCED PROJECTIVE TECHNIQUES. 1 Q. A. W. 3 (2-2). Prerequisite: Psychology 341 or 309. An introduction to the use of projective techniques in selected areas of psychology. Offered odd numbered years.

550-551-552 PSYCHOLOGY OF LARGE ORGANIZATIONS. 1 Q. S. 3 (3-0). Prerequisite: Psychology 230 or Education 205 and teaching experience. Theories and research on motivation, personality, emotions, attitudes, social learning and adjustment of children from birth through adolescence.

550-551-552 ADVANCED PSYCHOLOGY OF GROUP MEMBERSHIP. 1 Q. A. W. 3 (3-0). Prerequisite: Psychology 550-551-552. An introduction to the theory and research on group processes and group members. Total credit allowed: 15.
RADIO AND TELEVISION courses are designed to prepare students as announcers, performers, program directors, managers and executives of radio and television stations. Graduates have many vocational opportunities in all phases of the operations of smaller radio and television stations. Larger stations, able to employ separate technicians, also employ some graduates. Students work toward either a Bachelor of Arts degree in Journalism with specialization in radio and television, or a Bachelor of Arts degree in Radio-Television. In either case, emphasis is placed on a strong liberal arts background, and approximately three-fourths of the courses for either degree will be taken in the College of Arts and Sciences. In addition to required courses in radio and television, special requirements must be met in curricula of related fields. Courses are offered by the School of Journalism, but the Departments of English, Speech, Drama and Physics also have offerings in the program. Production and direction of programs is included in the course of study. The professional training is of a high standard with facilities and equipment adequate to prepare students for successful careers in radio and television and related fields.

Note: Students wishing to major primarily in radio or television journalism should take the radio-television sequence in Journalism.

The College of Arts and Sciences and the School of Journalism offer the following curriculum leading to a Bachelor of Arts degree with a major in Radio-Television.

University Requirements: Credits
English Composition, 101-102-103 recommended 9
Physical Education 5
R.O.T.C. (men) Mil. or Air Science 101-102-103, 201-202-203 10
Group I 12
Group II 37
Group III 37
Foreign Language 25
English—201 3
Speech—119 3
Drama—212, 231 6
Journalism—270, 271 3

32 hours from the following courses:
Drama 241 2
Speech 342 2
Free Electives 25-27
Total 100-188

RELIGION courses of a non-sectarian nature are offered for general education purposes. Although no degree is offered in Religion, up to 15 credits in the courses listed below may be counted for graduation in other curricula where the professional requirements leave room for such electives. The instruction includes the use of religious literature, including the scriptures, along with church and religious history and contemporary thought and scholarship. No attempt is made to indoctrinate the student in beliefs or creeds.

The Montana School of Religion was organized in 1924 by a committee representing the University and several religious denominations for the purpose of offering courses in religion available to students. The School is affiliated with the University, under a director who is responsible to a Board of Trustees representing the cooperating denominations and the University.

FOR UNDERGRADUATES
118 (18) INTRODUCTORY STUDY OF RELIGION. 1 Q. A. W. S. 2. An introduction to the purposes, methods, and content of research into the origins and interpretations of scriptures including the Bible, the comparative study of the living religions of the world, the study of Church history, and the psychology of religion. (4 credits)

RESERVE OFFICER TRAINING CORPS or ROTC courses conducted by Army and Air Force officers at the University are part of the program of the armed forces of the nation. Unless waived for cause in individual cases, all undergraduate male students other than veterans are required to take some course for two years. The advanced courses normally lead to commissions in the forces of the United States. Four years are required to earn the degree of Bachelor of Science in Military Science or in Air Science. The scope of instruction is indicated below. Most University graduates who complete these courses and secure their commissions are ordered to active duty or sent into further training or special graduate work. In active service, the majority are assigned duties for which their University training has prepared them. A variety of careers in the Army or Air Force is open to them.

AIR SCHOOL
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 program include trigonometry, physics and either French, German or Spanish.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE WITH A MAJOR IN AIR SCIENCE

University Requirements: Credits
English 104-105 or 101-102-103 9-10
Physical Education 6
Mathematics—100, 113, 118, or equivalent 10
Physics 111-112-113 or 221-222-223 15
History 109 or 110 10
Political Science 101, 202-203, 231, 339 10
Geography 231-232 6
General 151-158-153 or other Group III subjects 6
Foreign Language (French, German or Spanish) 101, 102, 213, 215 or equivalent 22
Air Science 301-302-303, 304 (required), 401-402-403 16
Electives 116

BASIC COURSE: AIR AGE CITIZENSHIP EDUCATION
101-102-103 (1abc) THE AIRPLANE AND THE AIR AGE. 3 Q. A. W. S. 2.1, 101) Introduction to AFROTC and to Aviation; Outline of the AFROTC program, the airplane, elementary theory of flight, airplane engines and history of flight. Fundamentals of Global Geography; major political regions, and geographical foundations of power. 102) International Tensions and Security Organi-
ADVANCED COURSE: AIR FORCE OFFICER DEVELOPMENT

Admission to the Advanced Course is on application of the student and selection by the Professor of Military Science and the President of the University. Once begun, successful completion of the six quarters and the summer camp is a requirement for all bachelor degrees.

301-302-303 (10abc) AIR FORCE OFFICER TECHNIQUES. 3 Q. A, W, S. (301) The Air Force Commander and his Staff: Principles of organization, authority, responsibilities and functions of the commander and the staff officer. Problem solving: Scientific methods and problem solving techniques, and international security structures, and techniques of communications including writing and speaking exercises. (302) Career Preparation: Methods of instruction, instructional aids and evaluation of instruction. The Military Uniform Code of Conduct: Justice, non-judicial punishment, courts-martial, pretrial and trial procedure, evidence, boards of officers. Navigation: Pilotage, celestial, and radar navigation. Meteorological phenomena including air masses and frontal systems. (303) Leadership, Drill, and Exercises: Exercise of command or staff responsibilities in planning and directing military operations; or theoretical and practical exercises in giving military instruction; or practical work as instructor and assistant instructor in rifle marksmanship or crew served weapons. Assigned to a working unit. (302) Small unit tactics, including the principles and techniques of leadership, including first aid, and defensive operations. (303) Leadership laboratory and communications, including practical work in instructing and directing military drill of individuals and small units and the principles and methods of Army communication systems.

ADVANCED COURSE: OFFICER TRAINING

The advanced course prepares the student for a commission as a Second Lieutenant in any branch of the United States Army Reserve. Admission is on application of the student and selection by the Professor of Military Science and the President of the University. Once begun, successful completion of the six quarters and the summer camp is a requirement for all bachelor degrees, unless sooner honorably discharged.

401-402-403 (11abc) MILITARY MANAGEMENT. 3 Q. A, W, S. (401) Leadership and instructional principles, including characteristics, qualities, requirements, problem solving and theoretical and practical exercises in giving military instruction; organization and administration of Air Force Base Functions: Principles of organization, and functions performed by the Air Force Base as an integrated unit.


MILITARY SCIENCE

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, the student needs algebra and geometry and that the additional preparation include trigonometry, physics and either French, German or Spanish.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE WITH A MAJOR IN MILITARY SCIENCE

University Requirements

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<td>English 164-105 or 101-102-103</td>
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<tr>
<td>Physical Education</td>
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<td>Military Science 101-102-103 and 202-203</td>
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Major Requirements

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<td>Physics 111-115 or 221-222-223</td>
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<tr>
<td>History 103-185</td>
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<tr>
<td>Political Science 101, 203</td>
<td>12</td>
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<tr>
<td>General 125-125 or Other Group III subjects</td>
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<td>Geography 331-332</td>
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<tr>
<td>Foreign Language (French, German or Spanish)</td>
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<tr>
<td>Military Science 301-302-303, 401-402-403 or 404, 313</td>
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Electives

52-53

RESERVE OFFICERS TRAINING CORPS—65

BASIC COURSE: MILITARY TRAINING FOR CITIZENSHIP

101-102-103 (1abc) INTRODUCTION TO THE ARMY. 3 Q. A, W, S. 2.2.1. Students may enter any quarter. Prerequisite: 101-102-103. (101) Introduction to Army organizational principles, missions, and chain of command; practical instruction in Individual Weapons and Marksmanship with emphasis on preliminary marksmanship shooting techniques and instructional methods to enable the student to coach others. (102) American Military History, emphasizing men, faces and events which have led to the organizational, tactical and psychological patterns found in our Army today. (103) Leadership, Drill, Exercise of Command, basic and progressive training in leadership through practical exercises and instruction in drill, ceremonies, military customs and courtesy. Emphasis placed on the teamwork and proficiency required of the individual.

201-202-203 ADVANCED INDIVIDUAL TECHNIQUES. 3 Q. A, W, S. 2.2.1. Students may enter any quarter. Prerequisite: 101-102-103. (201) Map and Aerial Photograph Reading to include their reading and employment, terrain evaluation, marginal information, military symbols, orientation, resection and the Military Grid Reference System familiarization with Infantry, aircraft, and atomic weapons. (202) Recoilless and Indirect Fire Weapons and Gunnery, to include mechanical functioning, nomenclature, principles of fire control and techniques of employment. (203) Leadership, Drill, and Exercise of Command, a continuation of 103 with emphasis on functions, duties and responsibilities of junior leaders.

R. O. T. C. Annual Awards Presentation
SECRETARIAL - HOME ARTS is a curriculum, designed especially for women, combining work in Secretarial Science and Home Economics. Home Economics provides a base for successful home and family life; and Secretarial Science provides training for a vocation for immediate or future use. Four years are required for the degree of Bachelor of Science or Bachelor of Arts. The courses in secretarial science provide training in typing, shorthand, filing, the use of office machines, and secretarial practice as preparation for general office work. Opportunity is provided for election of additional secretarial courses if added proficiency is desired. The work in home economics includes the study of nutrition, home equipment, house planning and furnishing, budgeting, child development, and family living. In addition, a general education is provided in areas outside the major fields.

This course is for women who desire a broad liberal education with some training in home making and sufficient vocational training to provide them with professional opportunities.

Following are the requirements leading to the Bachelor of Science in Secretarial-Home Arts. Students desiring to receive the Bachelor of Arts degree with a major in Secretarial-Home Arts may do so by meeting those requirements in Secretarial Science and foreign language requirement of five quarters (23-25 credits), three quarters or equivalent in each of two foreign languages, or a reading knowledge at the level of attainment expected of a student who has passed at least five quarters in a foreign language.

University Requirements Credits
English Composition (104, 105 recommended) 9-10
Physical Education 6
Group Requirements Credits
Group I 12-15
Group II (Humanities 101, 102, 103 recommended) 12-15
Major Requirements Credits
Home Economics 102, 141, 151 (Placement test required) 15
Eco 152
246
216
202
352
356, 367, 368; or Soc. 311 4
1 other course above 100 3
39

Home Economics courses with credit toward major with 186 total credits not to exceed 39 cr.

Business Administration 182 (Placement test required) 15
183 (Placement test required) 2
184, 185, 186 (1 year in H.S., or no cr. in 184; 2 yrs. in H.S., no cr. in 184 or 185) 15
187
190
193
194
195
201
202
384
39

Business Administration courses with credit toward major with 186 total credits not to exceed 39 cr.

Special requirements outside major.
Foreign Language (3 quarters or placement test) 15
Economics 110
Psychology 110
History 101, 102, 103 (2 quarters) 15
Political Science 101
25

Free Electives

SOCIAL WORK studies involve exploration of the ways in which social problems affect people; of the agencies which help people solve social problems; and of the methods used in such endeavor. Four years are required for the degree of Bachelor of Arts. Social work courses involve work based on lectures, textbooks, readings and case records, and some actual field work or observation. Broad studies in other social sciences are required.

The profession is new and expanding, and employment is open to graduates in many agencies which do not require full professional training. The major educational requirements are required for the Bachelor of Arts degree with a major in Social Work.

Also required is a classical or modern foreign language, 5 quarters (23-25 credits) in Social Work courses, or a foreign language requirement of five quarters (23-25 credits), or a reading knowledge at the level of attainment expected of a student who has passed at least five quarters in a language.

General Information: The undergraduate major in Social Work is available for those wishing a practical orientation toward social problems. Both theory and practice are emphasized to achieve the effective skills needed on the job. Those wishing a broader education in social sciences will find the program designed for this purpose as well as for effective citizen participation.

The undergraduate program features the interdisciplinary approach—courses selected from the several social sciences to serve as a foundation for a limited number of courses which present Social Work content and method. Group methods are freely used.

Major requirements: A minimum of 20 credits in Social Work courses is required. However, during the first two years of study, the following courses should be taken in order to provide a broad foundation for education in Social Work. In Social Work 181 or 182; Economics 201-202-203; History 102-103 or 225-226-228; Political Science 252-253; Psychology 110; Sociology 101 and 102; and Social Work 181.

During the second two years, one course numbered 300 or above must be taken in each of the following fields: Anthropology, Economics, History, Political Science, Psychology, and Sociology. Work in the Community Services Laboratory during the senior year is required up to a maximum of 12 credit hours.

FOR UNDERGRADUATES

631 (170b) INTRODUCTION TO RECREATION LEADERSHIP. 1 Q. A. 3. Prerequisite: Sociology 101. Introduction to recreation leadership, social aspects of leisure; survey of recreation resources and activities. Forces, interests, and resources required to provide a total community recreation program. Credit not allowed for this course and for the identical course in Health and Physical Education.

632 (170a) RECREATION LEADERSHIP (SOCIAL RECREATION). 1 Q. W. 3. Prerequisite: Sociology 101. Philosophy of social recreation, theory and practice of group leadership and program development. Special groups such as groups with special requirements such as the handicapped. Credit not allowed for this course and for the identical course in Health and Physical Education.

633 (170c) RECREATION LEADERSHIP (CAMP LEADERSHIP). 1 Q. W. 3. Prerequisite: Principles, philosophy of outdoor activities, theory and practice of group leadership and recreation skills in relation to organized camping. Credit not allowed for this course and for the identical course in Health and Physical Education.

182 (132) GROUP METHODS IN TEACHING. 1 Q. Su. only. 3. Nature and extent of the problem. The role of courts, social agencies, and schools in its prevention and treatment.

183 (124) JUVENILE DELINQUENCY. 1 Q. Su. only. 3. Nature and extent of the problem. The role of courts, social agencies, and schools in its prevention and treatment.

184 (132) GROUP METHODS IN MODERN SOCIETY. 1 Q. S. 4. Principles of social work and modern social problems. Group methods involved in group process. The place of group experience in a democracy. The role of the group member, leadership, achieving group effectiveness. Group dynamics.

185 (156) PUBLIC WELFARE. 1 Q. A. 4. Prerequisite: Social Work 181. Development, organization, functions and methods of governmental programs designed to protect individuals and fami-
lies against the loss of income due to such hazards as unemployment, illness, disability, and age and death.

431 (130) CASE STUDIES. 1 Q. S. 4. Prerequisite: 12 credits in Social Work and Sociology 101. The analysis of case records drawn from a variety of Social Work settings.

432 (133) COMMUNITY RELATIONS. 1 Q. A. 4. Su. 3. Prerequisite: 10 credits in Social Work. The place of the professional person in community living; his responsibilities as a citizen, his philosophy and ethics especially as they relate to the community, his contributions to community welfare, and the community needs and problems.

455 (134) FIELD PRACTICE: COMMUNITY SERVICES LABORATORY. 2 Q. A. W. S. 1-2 cr. or each quarter. May be entered any quarter. Prerequisite: Sociology 101. 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. Total credit limited to 12.

484 (135) CHILD WELFARE SERVICES. 1 Q. W. 4. Prerequisite: Social Work 101. Development, organization, functions and methods of social services designed to meet the special needs of children and their families, foster home and institutional care, adoption services, school social services, youth services, etc.

485 (190) ADVANCED SOCIAL WELFARE. 1-2 cr. Prerequisite: consent of instructor. Total credit allowed: 6.

SOCIOLoGY is a field in social science concerned with the behavior of people in groups, particularly societies and cultures, and the institutional arrangements under which people live. It is concerned with contemporary civilization.

Four years are required for the Bachelor of Arts degree, which may be earned either in Sociology or a combination of Sociology and Anthropology. The Master of Arts degree is also offered (see Graduate Studies). Sociology courses for undergraduates involve mainly preparation on the basis of texts and readings followed by classroom recitations, discussions, and lectures.

Graduates may engage in teaching, research, or government service. There are many opportunities for scholarships and fellowships in graduate work. Sociology is also a preparatory background for those who, after other studies, plan to engage in many of the familiar professions.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE. In addition to the general requirements for graduation listed earlier in the guidebook, fifty credits in departmental courses are required for the Bachelor of Arts degree with a major in Sociology. A classical or modern foreign language, 3 quarters (23-25 credits) in one language, one year in each of two foreign languages, or a reading knowledge at the level of attainment expected of a student who has passed five quarters in a language may be taken. At least 35 of the 50 major credits must be in sociology courses, including Sociology 101, 201, 202, 203, 301, 303, Anthropology 123 or 153 and Social Welfare 101 may be taken. Remaining major credits for the major may be selected from any courses in the department.

COMBINED ECONOMICS AND SOCIOLOGY: For those who plan to go into work that requires a background in both economics and sociology, the following courses in addition to general departmental requirements should be completed: Sociology 101, 304, 305, and 401; Economics 101-205-305; and Geog-101. The remainder of necessary credits will be determined according to the student's major.

A minimum of 60 credits is required for the combined major.

FOR UNDERGRADUATES

101 (16) INTRODUCTORY SOCIOLOGY. 1 Q. A. W. S. Su. 5. A general study of interhuman relationships.

102 (17) SOCIAL PROBLEMS. 1 Q. A. W. S. Su. 4. Prerequisite: Sociology 101. A general study of social and personal disorganization.

201 (25) DEVELOPMENT OF SOCIAL THOUGHT. 1 Q. A. 4. Development of social thought from earliest times to the establishment of sociology.

202 (26) COLLECTIVE BEHAVIOR. 1 Q. W. 3. Prerequisite: Sociology 101 or Psychology 110. Theories relating to mass behavior. The characteristics of collective social aggrupations, such as mobs, and social movements.

203 (30) SOCIAL INSTITUTIONS. 1 Q. S. 4. Contemporary institutions with reference to their structure, functions, and recruitment.

204 (190) COURTSHIP AND MARRIAGE. 1 Q. Any quarter. 3. A general consideration of factors in courtship and marriage.

205 ELEMENTARY SOCIAL STATISTICS. 1 Q. Any quarter. 2. Introduction to social statistics and methods used in the social sciences. Credit not allowed for this course and the identical course Economics 265.

FOR UNDERGRADUATES AND GRADUATES

201 (191) SOCIAL MOVEMENT. Prerequisite: Sociology 101. Selected reform and other movements with emphasis on their organizational, functional, and behavioral characteristics. Offered odd numbered years.

302 (117) SOCIAL STRATIFICATION. 1 Q. S. Su. 3. Prerequisite: Sociology 101 or consent of instructor. Analysis of the class system in contemporary society in terms of social class, class behavior, and current research in social stratification in American society. Offered in even numbered years.

303 (118) SOCIAL SCIENCE METHODS. 1 Q. A. 3. Prerequisite: 10 credits in Social Science courses. Introduction to the methodology, techniques and instruments of measurement used in the social sciences.

304 (120) POPULATION. 1 Q. S. 4. Prerequisite: Sociology 101. A quantitative and qualitative study of population; vital statistics and population change, migration, and immigration.

305 (119 & 121) PRINCIPLES OF RURAL-URBAN SOCIOLOGY. 1 Q. W. 4. Prerequisites: 10 credits in Social Science; an understanding of how industrialization and urbanization; changes in social relationships and social structures in rural and urban communities; the ecology of rural and urban life.

306 (122) CRIMINOLOGY. 1 Q. S. 5. Prerequisite: Sociology 101 or 102. The causes, prevention, detection, and correction of crimes.

307 (127) SOCIAL CONTROL. 1 Q. W. 3. Prerequisite: Sociology 101. Institutional and non-institutional methods by which persons and groups are controlled. Offered even numbered years.

309 INDUSTRIAL SOCIOLOGY. 1 Q. S. 4. Prerequisite: Sociology 101 or Psychology 119. Analysis of work plants such as factories, offices, and stores; work group processes and applied problems; industrial relationships in the community.

311 (Home Ec. 129) FAMILY DEVELOPMENT. 1 Q. S. 3. Prerequisite: Sociology 101. Psychology 110. Any one of the following courses in human development or child development: Home Economics 363, 367, 368; any psychology course; or a course acceptable to the instructor. Interactional functioning of American families as changing groups of changing individuals, mutually shaping one another's development throughout the family life cycle.

313 (126) FOUNDATIONS OF MODERN SOCIOLOGY. 1 Q. W. 4. Prerequisite: Sociology 101. Selected sociological problems arising from the theories of Durkheim, Weber, and contemporary writers.


403 (190) ADVANCED PROBLEMS. Any quarter. 1-2. Prerequisite: consent of instructor and 30 credits beyond 101. Preparation of a research project in specialized field.

404 SURVEY OF EUROPEAN SOCIOLOGY. 1 Q. W. 3. Prerequisite: Sociology 101. Contemporary European Sociologists and their sociologies they examine.

407-408-409 (150abc) SEMINAR. 2 Q. A. W. S. 2, 2. 2. Students may enter any quarter. Prerequisite: 10 credits in sociology.

FOR GRADUATES

301 (301) GRADUATE RESEARCH. Any quarter. Credit variable.

659 (299) THESIS. Any quarter. Credit variable. Total credit allowed: 15.

SPEECH

Includes courses in the field of General Speech, and according to the interest of the student, major emphasis in one or more of five areas of concentration: Public Address and Forensics, Correction and Audiology, Speech Education and Interpretation through Radio and Television, and Interpersonal and Group Communication. Speech graduates teach Speech (including drama and radio), serve in high school or college, enter employment in radio-television, public relations, administrative personnel work, and speech correction clinics, or do professional speaking. Also, as a result of their training, graduates in Speech can compete successfully in various other fields.

The curriculum in Speech is designed to provide cultural background and technical training in oral communication which will prepare the student for competence in social situations, for leadership in a chosen profession, and for proficiency in professional speech work.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN SPEECH

In addition to the general requirements for graduation listed earlier in the guidebook, the following requirements must be completed by the Bachelor of Arts degree in Speech major, emphasis in one or more of five areas of concentration: Public Address and Forensics, Correction and Audiology, Speech Education and Interpretation through Radio and Television, and Interpersonal and Group Communication. Speech graduates teach Speech (including drama and radio), serve in high school or college, enter employment in radio-television, public relations, administrative personnel work, and speech correction clinics, or do professional speaking. Also, as a result of their training, graduates in Speech can compete successfully in various other fields.

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118 (40) VOICE AND DICTION. 1 Q. A. W. S. 3. Principles of phonation and enunciation. Analysis of speech sounds, utilizing the objective alphabet for the purpose of improving individual speech and achieving vocal flexibility.

214 (42) DISCUSSION TECHNIQUES. 1 Q. A. A. 3. A study of and practice in the oral defense of issues, in preparing for and participating in debates and discussion, with emphasis on the development of presentational and persuasive techniques, and relating them to public service, public issues, and personal development.


222 (61) RADIO-TELEVISION SPEECH. 1 Q. W. 3. Prerequisites: Speech 117 and Journalism 140. Practice in producing and presenting annotated speech for radio and television. Analysis of individual voices by tape recording.

251 (59) BEGINNING ORAL INTERPRETATION. 1 Q. A. 3. Prerequisite: Speech 110 or 111. Practice in communicating all forms of literature. Oral expression and individual style, with special consideration of melody, rhythm, meter, figures of speech, and methods of expression, in literature. Application of these principles in creating patterns spoken by the group.

252 (59) INTERMEDIATE ORAL INTERPRETATION. 1 Q. W. 3. Prerequisite: Speech 118 or 261. Practice in communicating all forms of literature, including functional articulation, pronunciation, and vocal and physical interpretation of the various forms of speech for radio and television. Analysis of individual voices by tape recording.

317 (195) SPEECH IN TEACHING AND LEARNING. 1 Q. A. 3. For non-Speech majors. The speech competence of the teacher-aFactor in the use of speech as a teaching device, and the principles by which the teacher works with the speech of his students.

319 (148) ADVANCED PHONETICS. 1 Q. A. 3. Prerequisite: Speech 218. The neuro-physiological basis of phonetic principles with consideration of the morphological aspects of oral language, dialects, foreign accents, and current American usage.

322 (122) THE MODERN FORENSICS PROGRAM. 1 Q. Su. only 3. Prerequisite: Speech 334. The science of debating and argumentation with emphasis on oral interpretations, including functional articulation and phonation, delayed speech, stuttering, aphasia, ototoxicology, and certain formulations in general semantics as tools of evaluation.

FOR UNDERGRADUATES AND GRADUATES

316 (161) BUSINESS AND PROFESSIONAL SPEECH. 1 Q. A. W. S. 3. Prerequisite: 5 credits in Speech. The methods, techniques, and psychology of speech for leaders in business, labor, education, and the professions.

320 (170) SPEECH IN TEACHING AND LEARNING. 1 Q. A. 3. For non-Speech majors. The speech competence of the teacher-aFactor in the use of speech as a teaching device, and the principles by which the teacher works with the speech of his students.

318 (148) ADVANCED PHONETICS. 1 Q. A. 3. Prerequisite: Speech 218. The neuro-physiological basis of phonetic principles with consideration of the morphological aspects of oral language, dialects, foreign accents, and current American usage.

321 (122) THE MODERN FORENSICS PROGRAM. 1 Q. Su. only 3. Prerequisite: Speech 334. The science of debating and argumentation with emphasis on oral interpretations, including functional articulation and phonation, delayed speech, stuttering, aphasia, ototoxicology, and certain formulations in general semantics as tools of evaluation.

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WILDLIFE TECHNOLOGY

WILDLIFE TECHNOLOGY is the study of basic science with particular emphasis upon the biological sciences, together with the development of special skills and techniques as a preparation for professional work in fish and wildlife management. Wildlife Technology stresses the practical application of biological and ecological principles to the management of wildlife. Wildlife Technicians work with a variety of wildlife species, including children and adults, will be assigned to the clinicians according to background and experience.

339 (42) SPEECH CLINIC PRACTICE. 1 Q. A. W. S. 3. Prerequisite: Speech 338 and concurrently in Speech 339. Clinical study of the physiological, neurological and psychological bases of speech disorders from the standpoint of their diagnoses, prognosis, and therapy.

348 (123) AUDIOLINGUISTICS. 1 Q. W. 3. Prerequisite: Speech 336. The science of hearing and hearing loss. The ear, process of hearing, and hearing testing techniques.

FOR GRADUATES

511 (40) PERSUASION. 1 Q. W. 3. Prerequisite: Speech 343 or 344. Advanced study of changing belief and conduct by the use of logical reasoning, motive appeal, suggestion, and other available means.

600 RESEARCH. Any quarter. Credit variable. Total credit allowed: 10. Prerequisite: 18 credits in Speech. Research and independent study.

609 (299) THESIS. Any quarter. Credit variable. Total credit allowed: 10.
**SUGGESTED CURRICULA IN WILDLIFE TECHNOLOGY**

**Freshman Year**

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<th>Course</th>
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<tr>
<td>Bot. 111-112—General Botany</td>
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<tr>
<td>Chem. 101-102-103—General Chemistry</td>
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<tr>
<td>Engl. 104-105—Freshman Composition</td>
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<tr>
<td>Math. 100 or 121 (if required by placement)</td>
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<tr>
<td>H. &amp; P.E. 101-102-103—Physical Education</td>
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<td>ROTC 101-102-103—Military or Air Science</td>
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**Sophomore Year**

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<tr>
<td>Zool. 104-105, 201—Elem. Zoology, Comparative Vertebrate Anatomy</td>
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<td>Phys. 111, 112 or 113—General Physics</td>
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<td>H. &amp; P.E. 210-212-202—Physical Education</td>
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<td>ROTC 210-212-202—Military or Air Science</td>
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**Terrestrial Option**

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<tr>
<td>Zool. 308 or 309—Ornithology, Mammalogy</td>
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<tr>
<td>Zool. 365—Entomology</td>
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<tr>
<td>Zool. 413—Fishery Science</td>
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<tr>
<td>Bot. 355—Plant Ecology</td>
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<tr>
<td>For. 369—General Range Management (vary depending on Zool. or Bot.)</td>
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**Senior Year**

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<tr>
<td>Zool. 340, 341—Vertebrate Physiology</td>
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<tr>
<td>Bot. 318-319—Gen'l Botany, Classification of Spring Flora</td>
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<td>Zool. 362—Vertebrate Embryology</td>
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**Aquatic Option**

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<tr>
<td>For. 252, 250—Surveying, Mapping</td>
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<td>Bot. 235, 365—Plant Physiology, General Systematic Botany</td>
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<td>Zool. 310, 350, 397—Ichthyology, Ecology of Wildlife Populations, Aquatic Biology</td>
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<td>Math. 125—Statistics</td>
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**Senior Examining**

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<td>Eng. 104-105—Freshman Composition</td>
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<td>Math. 100 or 113 (if required by placement)</td>
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<td>H. &amp; P.E. 101-102-103—Physical Education</td>
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<tr>
<td>ROTC 101-102-103—Military or Air Science</td>
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**Junior Year**

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<td>For. 252, 250—Surveying Mapping</td>
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<tr>
<td>Bot. 235, 365—Plant Physiology, General Systematic Botany</td>
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<tr>
<td>Zool. 308, 309, 308—Mammalogy, Ecology of Wildlife Populations, Ornithology</td>
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<td>Math. 125—Statistics</td>
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<td>Group requirements</td>
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**Senior Year**

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<th>Course</th>
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<td>Bot. 318-319—Gen'l Botany, Classification of Spring Flora</td>
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<td>Zool. 362—Vertebrate Embryology</td>
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**ZOOLOGY** is the study of animals—how they are put together, how their bodies work, and how they adjust to their surroundings. It is a basic science for many professional fields such as medicine, pharmacy, wildlife, and physical education.

Four years are required for the Bachelor of Arts degree. The Master of Arts (or Master of Science) degree is also offered (see Graduate Studies). Undergraduate courses involve much laboratory work as well as the study of texts and classroom recitations. There are also opportunities for field work: during the summer five extensive field experience is available at the Biological Station maintained on Flathead Lake for qualified upperclass and graduate students.

Graduates become high school teachers or, after advanced studies, instructors in colleges and universities. Others enter state or federal government service in health and conservation agencies. Many, with further training, enter medicine or related fields. A few establish themselves as fish culturists, fur farmers, pest control experts, and so on.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN ZOOLOGY.** In addition to the general requirements for graduation listed earlier in the guidebook, the following special requirements must be completed for the Bachelor of Arts degree with a major in Zoology: 35 credits in Zoology including Zoology 104-105, 106, 201, 202, 203, 240, 241, 255, 1 credit of 420.

The following must also be completed: Botany 121-122, 123 or 100 or 121-122; Chemistry 101-102-103 or 121 or 125 and 129 or 290; and Physics 111-112-113 or 221-222-223.

Students who contemplate graduate work in Zoology should elect during their junior or senior years, Bacteriology 200 and Zoology 303, 305.

A reading knowledge of a modern foreign language at the level of an advanced quarter in a language as demonstrated by a suitable achievement test, or 22 to 23 credits in French, German or other language approved by the department is required. It would be wise for prospective graduate students to secure a reading knowledge of both French and German if possible.

Senior examinations are given only to candidates for honors.

**CURRICULUM IN ZOOLOGY**

**Freshman Year**

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<td>For. Lang. 101-102-103—Elem, French or German</td>
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<td>H. &amp; P.E. 101-102-103—Physical Education</td>
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<td>ROTC 101-102-103—Military or Air Science</td>
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**Sophomore Year**

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<td>Chem. 101-102-103 or 121-122-123 or 290—Gen’l Chem., Inorganic Chem., or Qualitative Analysis</td>
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<td>Zool. 301—Comparative Vertebrate Anatomy</td>
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**Junior Year**

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<td>Bot. 318-319—Gen’l Botany, Classification of Spring Flora</td>
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<td>Zool. 362—Vertebrate Embryology</td>
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**Senior Year**

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<td>Zool. 385, 338—Genetics, Animal Ecology</td>
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<tr>
<td>Phys. 111-112-113 or 221-222-223—Gen’l Physics</td>
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<td>Zool. 420—Biological Literature</td>
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<td>Electives</td>
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**Bison Wildlife Study**

Bison Wildlife Study
FOR UNDERGRADUATES

101 (10) GENERAL ZOOLOGY. 1 Q. A. Su. 5 (3-4). Certain basic biological principles as exemplified by the study of the characteristics of animal protoplasm and selected invertebrates and a vertebrate forerunner.

101-105 (16b) ELEMENTARY ZOOLOGY. 2 Q. A. W. 5.5, (3-4). A survey of the invertebrates and the vertebrates, anatomy, physiology and various zoological principles.

106 (15) FIELD ZOOLOGY. 1 Q. S. 2-5. Su. at Biological Station. Prerequisites: Zoology 101 or 104 and one laboratory course in Zoology. The comparative anatomy, morphology, and phylogeny of the vertebrates.

201 (23) COMPARATIVE VERTEBRATE ANATOMY. 1 Q. S. 5 (3-4). Prerequisites: Zoology 101 or 104 or one laboratory course in Zoology. The comparative anatomy, morphology, and phylogeny of the vertebrates.

202 (24) HUMAN PHYSIOLOGY. 1 Q. S. Su. 5 (3-4). Prerequisites: Sophomore standing or two years of Biology, including Dynamics of Life. An overview of the normal physiology of blood circulation, respiration, digestion, excretion, irritability, locomotion, coordination, and reproduction.

224 (120) EVOLUTION. 1 Q. W. 3 (3-4). Prerequisites: Botany 121, 122, 123 and Zoology 106. The theories of evolution from the historical point of view; the nature of evolutionary processes, the evidence for evolution, and the factors of evolution. Credit not allowed for this course.

FOR GRADUATES

301 (101) GENERAL COMPARATIVE EMBRYOLOGY. 1 Q. A. 5 (3-4). Prerequisites: Zoology 311-312. The early stages of development of the invertebrates and vertebrates, including fertilization, cleavage, formation of the germ layers and early organogenesis.

302 (102) VERTEBRATE EMBRYOLOGY. 1 Q. W. 5.5 (3-4). Prerequisites: Zoology 201. The early stages of development of the vertebrates involving organogenesis, with emphasis on birds (chick) and mammals (pig).

303 (103) PARASITOLOGY. 1 Q. W. 5 (3-4). Prerequisites: Zoology 304-305. The taxonomy and life histories of type forms of parasites.

305 (105) HISTOLOGY AND MICROTECHNIQUE. 1 Q. W. 5 (3-4). Prerequisites: Zoology 201 or consent of the instructor. Basic tissues are studied and a limited amount of work is done on organ systems. Microtechnique with emphasis on the paraffin method.

307 (107) AQUATIC BIOLOGY. 1 Q. A. S. 5.5 (3-7, 10). Prerequisites: Zoology 106 and Botany 123. A survey of the biota of fresh water with emphasis upon the flora and invertebrate fauna, with some consideration of their relationship to the food chains and habitats of fish, and man's utilization of aquatic animals and plants and taxonomic position of aquatic organisms below vertebrates.

308 (108) ORNITHOLOGY. 1 Q. S. 5 (4-6), Su. 3. At Biological Station. Prerequisites: Zoology 201. The structure, classification and life histories of birds. Weekly field trips. Students are expected to provide themselves with binoculars.

310 (110) Ichthyology. 1 Q. A. 5 (3-4). Prerequisites: Zoology 201. The systematic and distribution of the more important orders of fish, their collection and identification. Life histories and certain fundamentals of the physiology of fish are considered. Field trips are taken.

321-322 (11b) INVERTEBRATE ZOOLOGY. 2 Q. A. W. 5.5, (3-4). Prerequisites: Zoology 104-105 and one additional Zoology course. The anatomy, embryology, and phylogeny of the invertebrate animals. Given even numbered years.

328 (128) ANIMAL ECOLOGY. 1 Q. S. 5 (3-4). Prerequisites: Zoology 201 or Botany 225 or equivalent. The relationships between animals and their environment with special emphasis on the vertebrates. Field trips are taken. Given every Fall and Winter. Given odd numbered years.

333 (133) VERTEBRATE ENDOCRINOLOGY. 1 Q. S. 3 (3-4). Prerequisites: Zoology 201, 202 or consent of instructor. The microscopic anatomy and the normal physiology of the major glands of internal secretion of vertebrates. Correlative problems employing surgical and experimental techniques may be undertaken as part of the laboratory work.

340-341 (150a) VERTEBRATE PHYSIOLOGY. 2 Q. A. W. 5.5, (3-4). Prerequisites: Zoology 201 or equivalent, three quarters of college chemistry or consent of the instructor. General physiological properties of protoplasm, body fluids, and circulation; respiration and excretion; (341) digestion, nutrition and interrelationships, growth, metabolism, excretion, nutrition, respiration, sensitivity, endocrines and reproduction.

350 (150) ECOLOGY OF WILDLIFE POPULATIONS. 1 Q. W. 3 (3-4). Prerequisites: Zoology 333 or permission in biology including Zoology 300, 305 or 307, and 310, and 233 or 350, Botany 335, and Mathematics 222 or equivalent. The influence of environmental, biotic, and social factors on population structure, density, fluctuations, and productivity, and of intra- and inter-specific relationships on community organization. Theoretical considerations as well as examples from the wildlife field are taken up. Weekend field trips are conducted.

561 (161) LIMNOLOGICAL METHODS. 1 Q. Su. only, 3 (3-12). Field and laboratory practice in standard procedures employed in limnology.

699 (299) THESIS. Any quarter. A thesis written under the direction of the instructor. Given only at Biological Station. Prerequisites: Zoology 311, Chemistry 103 or 123, and Biology Station. Given odd numbered years.

COURSES OFFERED IN THE SUMMER AT THE BIOLOGICAL STATION

**DEGREES CONFERRED 1956-1957**

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**Bachelor of Arts (continued)**

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**Montana State University Missoula**

**Summary of Registration, 1956-57**

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<th>Sophomores</th>
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