1-1-1959

1959-1960 Course Catalog

University of Montana–Missoula. Office of the Registrar

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Cherished "Main Hall"... ADMINISTRATION BUILDING AND CARILLON

1959-60 GUIDEBOOK

MONTANA STATE UNIVERSITY BULLETIN
Number 483 May, 1959

MISSOULA, MONTANA
PURPOSE OF GUIDEBOOK

The Guidebook of Montana State University is published to provide current information to be used by prospective students, their parents, their teachers, and advisers; by college students, faculty members, and administrative officers; by registrars and accrediting agencies. It also serves as an official legal document and provides a historical record.

The Guidebook is planned to furnish the prospective student with information needed for selecting a school and making long-range educational plans leading to a chosen career. Students without well defined vocational objectives may attend for a year or two as “General” majors, taking courses that meet general requirements for graduation and that provide general education as a foundation for more specific work selected at least by the end of the sophomore year.

USE OF GUIDEBOOK

1. The table of contents below may be used for locating information under broad general headings. For specific items of information, check the INDEX on inside of back cover.

2. Students should study with care those sections on REGISTRATION AND GENERAL REGULATIONS and on GRADUATION REQUIREMENTS. This information should be reviewed before registration periods.

3. When checking on particular courses, be sure to review the EXPLANATION OF SYMBOLS on page 20.

4. Plan your program at least a year in advance and double-check it against the printed schedules of classes since there are often deviations from the listings in the Guidebook.

5. If you have selected a major, study carefully the specific additional requirements for graduation listed under your chosen field.

6. When in doubt as to meanings or interpretation of listed information, consult your adviser or department chairman.

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ENROLLMENTS

Total number enrolled for the three quarters of the academic year 1957-1958 was 3337. Autumn quarters usually have the largest enrollment. There were 2896 students enrolled autumn 1957 and 3347 enrolled autumn 1958. Approximately 3750 students are expected autumn 1959. Summer quarter 1957, 1045 students enrolled and there were 1412 for the summer of 1958.

LIBERAL ARTS

include Literature, Philosophy, Art, Foreign Languages, and the Social Sciences. The latter include Anthropology, Economics, History, Political Science and Sociology.

Four years are required for the degree of Bachelor of Arts. This program permits the student to work in these areas rather than in a particular one of them and affords a varied selection from which to choose. During his last two years the student does more advanced work in two areas of his choice.

This curriculum is designed for the student who wants a broad, or “liberal,” education with a minimum of specialized professional work. It also provides a broad educational background for students who decide to prepare for high school teaching. Those who elect to teach, may qualify to do so by taking additional work in education as well as in their chosen field.

Following are the special requirements for the Bachelor of Arts degree with a major in Liberal Arts:

<table>
<thead>
<tr>
<th>Classification</th>
<th>University Requirements</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>University</td>
<td>English Composition (101-102-103 recommended)</td>
<td>9-10</td>
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<tr>
<td></td>
<td>Group I (Lab. sciences and mathematics recommended)</td>
<td>15</td>
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<tr>
<td></td>
<td>Military Science (men)</td>
<td>15</td>
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<td></td>
<td>Physical Education</td>
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</tr>
<tr>
<td></td>
<td>Major Requirements (Courses under 300)</td>
<td>30-41</td>
</tr>
<tr>
<td></td>
<td>1. Art 231-232-233</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>2. Foreign Language (5 quarters)</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>3. Economics, Psychology, Sociology, Anthropology</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>4. History and Political Science, (History 101-102-103 recommended)</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>5. Humanities (General 151-152-153)</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>6. Literature (English 211-212-213 and 231-232-233 recommended)</td>
<td>15</td>
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<tr>
<td></td>
<td>7. Philosophy</td>
<td>15</td>
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<tr>
<td>Major Requirements (Courses 300 and above)</td>
<td>122</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Economics, Psychology, Sociology, Anthropology</td>
<td>12</td>
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<tr>
<td></td>
<td>9. History and Political Science</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>10. Literature or Philosophy</td>
<td>12</td>
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<tr>
<td></td>
<td>Free Electives</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>0</td>
</tr>
</tbody>
</table>

CORRECTIONS PLEASE!

On page 17, following RESIDENCE HALLS, bottom of page, change $141 to $143, $160 to $162. The latter include Anthropology, Economics, History, Political Science and Sociology. Four years are required for the degree of Bachelor of Arts. This program permits the student to work in these areas rather than in a particular one of them and affords a varied selection from which to choose. During his last two years the student does more advanced work in two areas of his choice.

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Montana State University Bulletin

Number 483 May, 1959
Published at Missoula, Montana. Issued five times yearly: January, February, March, May, 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.
Montana beckons to the pioneers of a new age . . . America’s Youth. Gone are the trail blazers of the old West . . . Here are the mind builders of the new West.

Broader indeed is their horizon. Of human necessity, their influence must now clear roads to the hearts and minds of a world of men!

Every age requires pioneers . . . knowledge seekers, armed with the spirit of free thought, vigor and enterprise. Today, they arise as the greatest known potential with fruitful ideas and ideals . . . to shape the destiny of this global frontier.

Montana State University is dedicated in service to this living group . . . today’s newest pioneers, in search of higher education and the knowledge of truth.
MSU Law School, fifty-years-to-be in 1960-61. A higher percentage of its graduates are now judges and outstanding practitioners in recognized out-of-state jurisdictions, than from any Law School in the West.

"Settling the overdues"
—Library Loan Desk

Business Administration - Education; Bureau of Business and Economic Research

Liberal Arts . . . central hub of diversified studies
"Look Peter, the sky!"
—The Diary of Anne Frank

Three of 90 Canadians . . . home, at MSU

The clock tells time of many seasons

is the New West . . . a modern twentieth century frontier . . .

MSU School of Music and Recital Auditorium

Craig Hall one of the spacious residences (with Duniway Annex) adequately houses 624 students
Extra-Corporeal Hemodialyzer, “artificial kidney”... (for community clinical purposes and research), circulates body’s entire blood supply every 10 minutes.

Graduate student uses mirrors and vocabulary cards to make corrections in speech sounds. A 10-room Speech and Hearing Clinic provides training and research for students; clinical service in Western Montana.

Significant Research...

in the fundamental basis of allergy and hypersensitivity, which may reveal new light into the cause of bronchial asthma, nephritis, some heart ailments and central nervous disorders. Here, Director of Research Program, and assistant use “freeze dryer” to dehydrate biological specimens.

An Astro-Projector

For an Air-Space Age...

Central figure beneath the dome of the MSU Planetarium is a phenomenal apparatus that can locate a satellite and trace its route; Of perhaps three in the West, it is one of the finest of a limited series in the United States. Viewed by thousands of all ages at public lectures; its value in the teaching of physical sciences is boundless.
Strides in the Sciences . . . and related fields

MSU’s "Atom Smasher" . . . the seven and one-half million volt Linear Electron Accelerator is an outstanding research facility for students in nuclear physics. Atomic disintegration and nuclear changes give data of timely significance. The Physics Department is also equipped with a Mass Spectrograph obtained from the Atomic Energy Commission and a Grating Vacuum Spectrograph.
Meditation... to insight... to solution—
MSU Library Reading Rooms

Among the Year’s Visiting Notables:
MSU Professor Dorothy Johnson... with Gary Cooper, prior to the filming of her novel, “The Hanging Tree” in which he later starred; John Mason Brown... respected critic and commentator extraordinaire; Violinist Zvi Zeitlin, guest star of concert series; Vincent Price, renowned dramatic actor of stage, screen, TV.

From Football, to Forestry... to MSU’S Ballet Theatre.

The 32-piece Montana State University Symphonette
Award-winning Montana Kaimin

First place in a national news writing contest entered by more than 100 college newspapers is the latest honor accorded the widely-read Montana Kaimin, established in 1898. Here, Editor, assistant and typesetter consult on forthcoming issue.

Massive Lodge and Student Union, houses Grill, Dining Rooms, Book Store, Conference and Territorial Rooms

Highly successful are the student art exhibits and sales — Lodge Lobby

Linguist, supervising Freshman class in language laboratory

Students ski, minutes away from campus, Glacier National Park (a 3-hours' drive away) holds a ski meet on Logan Pass, July 4th each year.

The new MSU Television Center . . . expanding rapidly
New Swimming Pool features 7 racing lanes, an underwater vacuum cleaner, crystal mountain water . . . dehumidified air in spectator balconies!

The matchless abundance of year 'round recreation . . .

Splendor is everywhere around MSU. Recreation is boundless in the surprising year 'round mild climate of Western Montana . . . The Northwest Rockies, the Bitterroots and the Mission Range.—Swan Photo, USFS
Please Note!

By action of the State Board of Education on May 12, 1959, Montana State University is authorized to grant additional Doctor of Philosophy degrees in Chemistry, Microbiology, and Zoology. Please note this is an addition to the Doctor of Philosophy, page 8, column II, under the heading GRADUATE SCHOOL, in the paragraph next to the bottom of the page.

Also authorized by the State Board of Education on the same date as above, please note under FINANCIAL OBLIGATIONS, page 15, column I, at the bottom of the page, the Student Activity fee is changed from $10.00 to $17.00 per quarter.
THE UNIVERSITY OF MONTANA

The University of Montana is constituted under the provisions of Chapter 272, Laws of the State of Montana, approved March 14, 1913 (effective July 1, 1913).

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

MONTANA STATE BOARD OF EDUCATION

H. L. Steele, President

J. T. Johnson, Superintendent

M. E. Miller, Superintendents of Public Instruction

Mrs. G. E. Chambers, 1960

Merritt N. Warden, 1961

Emmet J. Riley, 1962

Earl L. Hall, 1963

George N. Lund, 1964

Mrs. F. H. Petro, 1965

Boynton G. Paige, 1966

E. A. Dye, 1967

Hugo Aronson, Governor

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

MONTANA STATE UNIVERSITY, MISSOULA

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

The School of Education

The College of Fine Arts

The Graduate School

The Division of Agriculture

The Division of Engineering

The Division of Household and Applied 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

The Eastern Branch Station

The Horticulture Branch Station

R. R. Renne, President

MONTANA STATE COLLEGE, BOZEMAN

Established February 16, 1893, and consisting of:

The Biological Station (Flathead Lake)

The Forest and Conservation Experiment Station

The Forest Nursery

The Laboratory Experimental Station

The Division of Public Service

The Montana Cooperative Wildlife Research Unit

The University Press

Harry K. Newburn, President-elect

Gordon B. Castle, Acting President

MONTANA SCHOOL OF MINES, BUTTE

Established February 17, 1893, and consisting of:

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

WESTERN MONTANA COLLEGE OF EDUCATION, DILLON

Established February 23, 1893, and consisting of:

The Two-year Course in Teacher Education

The Four-year Course in Teacher Education (Elementary and Secondary)

The Teachers’ Service Division

James E. Short, President

EASTERN MONTANA COLLEGE OF EDUCATION, BILLINGS

Established March 12, 1895, and consisting of:

The Two-year Curriculum in Teacher Education

The Four-year Curriculum in Teacher Education—Elementary and Secondary

The Graduate Division

The Summer Quarter

Herbert L. Steele, President

NORTHERN MONTANA COLLEGE, Havre

Established March 8, 1913, and consisting of:

The Two-year Liberal Arts, Vocational, Technical, and Professional Courses

The Three-year Course in Medical Secretarissy

L. O. Brockmann, President

MONTANA STATE UNIVERSITY

CALENDAR 1959 - 1960

1959 AUTUMN QUARTER

September 20-26, Sunday through Saturday ___________ Orientation Week

September 23-25, Wednesday through Friday ___________ Registration of former students

September 28, Monday ____________________________ Examinations

November 11, Wednesday _________________ Veterans Day, a Holiday

November 18, Thursday _________________ Thanksgiving Day, a Holiday

December 18, 5:20 p.m. ____________________ Winter Quarter Ends

1960 WINTER QUARTER

January 4-5, Monday and Tuesday ____________ Registration

January 6, Wednesday ________________________ Instruction Begins

February 17, Wednesday ______________________ Winter Quarter Ends

March 14-18, Monday through Friday ___________ Examinations

March 18, 5:20 p.m. ________________________ Spring Recess Begins

SPRING QUARTER

March 22-29, Monday and Tuesday ____________ Registration

March 30, Wednesday _________________ Pre-registration of New Students

May 20-21, Friday and Saturday ____________ Interscholastic Meet

May 30, Monday _________________ Memorial Day, a Holiday

June 6-10, Monday through Friday ____________ Examinations

June 10, 5:20 p.m. ________________________ Spring Quarter Ends

SUMMER SESSION

June 13, Monday (10 weeks and first term) __________ Registration

July 4, Monday ________________________ Independence Day, a Holiday

July 11, Monday _________________ Second Term Begins

August 19, Friday ________________________ Session Ends

1960 AUTUMN SEMESTER

September 21-23, Sunday through Saturday __________ Orientation Week

September 24, Thursday ______________________ Registration of Upperclass Law Students

September 29, Tuesday ______________________ Registration of Lowerclass Law Students

October 6-10, Monday through Friday ___________ Examinations

October 11, 5:20 p.m. ______________________ Autumn Quarter Ends

November 11, Veterans Day _________________ No classes

December 19, Saturday _________________ Christmas Vacation begins, after last class

January 4, 1960 ________________________ Classes resume at 8:00 a.m.

January 6-9, Wednesday through Friday __________ Pre-registration

January 25-30, Monday through Saturday __________ Semester Examinations

SPRING SEMESTER 1960

February 3, Wednesday ______________________ Registration for Spring Semester

February 4, Thursday ______________________ Classes begin at 8:00 a.m.

March 19, Saturday ____________________ Spring vacation begins after last class

March 25, Friday ______________________ Classes resume at 8:00 a.m.

April 20-22, Wednesday through Friday __________ Pre-registration

May 26-31, Wednesday through Tuesday __________ Semester Examinations

June 6, Monday ________________________ Commencement

1960 AUTUMN SEMESTER

September 19-21, Monday through Wednesday __________ Registration and Orientation of New Law Students (including former students from other schools)

September 21, Wednesday _________________ Registration of Upperclass Law Students

September 22, Wednesday _________________ Registration of Lowerclass Law Students

October 6-10, Monday through Friday ___________ Examinations

October 11, Veterans Day _________________ No classes

December 17, Saturday _________________ Christmas vacation begins after last class

January 3, Tuesday ______________________ Classes resume at 8:00 a.m.

January 4-6, Wednesday through Saturday __________ Pre-registration

January 23-28, Monday through Saturday __________ Semester Examinations

LAW CALENDAR 1959 - 60

AUTUMN SEMESTER 1959

September 21-23, Monday through Wednesday ____________ Registration of Upperclass Law Students (including Transfer Students from other Schools)

September 23, Wednesday _________________ Registration of Upperclass Law Students

September 24, Thursday ______________________ Registration of Upperclass Law Students

September 29, Tuesday ______________________ Registration of Upperclass Law Students

October 6-10, Monday through Friday ___________ Examinations

October 11, Veterans Day _________________ No classes

October 26, Thursday _________________ Thanksgiving Day (no classes)

December 19, Saturday _________________ Christmas Vacation begins, after last class

January 4, 1960 ________________________ Classes resume at 8:00 a.m.

January 6-9, Wednesday through Friday __________ Pre-registration

January 25-30, Monday through Saturday __________ Semester Examinations

SPRING SEMESTER 1960

February 3, Wednesday ______________________ Registration for Spring Semester

February 4, Thursday ______________________ Classes begin at 8:00 a.m.

March 19, Saturday ____________________ Spring vacation begins after last class

March 25, Friday ______________________ Classes resume at 8:00 a.m.

April 20-22, Wednesday through Friday __________ Pre-registration

May 26-31, Wednesday through Tuesday __________ Semester Examinations

June 6, Monday ________________________ Commencement
OFFICIAL DIRECTORY, 1959-1960

EXECUTIVE BOARD
THEODORE JACOBS, Missoula
MRS. THOMAS E. MULRONKEY, Missoula
ALEX M. STEPANOFF, Missoula

ADMINISTRATIVE OFFICERS
HARRY K. NEWBURN, Ph.D., L.H.D. (hon.), President-elect
GORDON B. CASTLE, Ph.D., Acting President
HAROLD CHATLAND, Ph.D., Academic Vice President (on leave February - June, 1959)
EARL C. LORY, Ph.D., Acting Academic Vice President and Acting Dean of the Faculty
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ROBERT T. TURNER, Ph.D., Dean of the College of Arts and Sciences
LUTHER A. RICHMAN, D.Mus. (honorary), D.Ed., Dean of the College of Fine Arts
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MAURINE CLOW, Ph.D., Associate Dean of Students
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HOMER ANDERSON, M.A., Director, Division of Public Service
KATHLEEN CAMPBELL, M.S., Librarian

THE FACULTY

BOTANY
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DIETERT, REUBEN A., Ph.D., Professor
HARVEY, LEROY H., Ph.D., Professor; Curator of the Herbarium; Acting Director of the Biological Station
HARVEY, MARIA (Mrs.), M.A., Lecturer (Winter Quarter)
HOWARD, HAROLD, M.S., Instructor
KRAMER, JOSEPH, Ph.D., Professor
PREECE, SHERMAN J., JR., Ph.D., Assistant Professor
ROBINSON, JOHN P., B.S., Instructor (Spring Quarter)
SEVER, JOSEPH W., Ph.D., Professor Emeritus
STEIN, OTTO L., Ph.D., Assistant Professor
WATERS, CHARLES W., Ph.D., Professor

SCHOOL OF BUSINESS ADMINISTRATION
BOONE, WILLIAM T., LL.B., Instructor (part time)
BUSCH, EDGAR T., M.B.A., Instructor
CHAMBERS, EDWARD J., Ph.D., Associate Professor; Associate Director, Bureau of Business & Economic Research
DOBBINS, JACK, B.A., Lecturer (part time)
EMULEN, DONALD J., Ph.D., C.P.A., Professor (on leave 1958-59)
FORD, ROBERT K., B.S., Lecturer (part time)
HARRIS, FREDERICK, M.S., Instructor
HELBING, ALBERT T., Ph.D., Acting Dean; Professor
HOLT, HAROLD L., LL.B., Lecturer (part time)

JOHNSON, MAXINE (Mrs.), M.A., Research Associate, Bureau of Business & Economic Research; Instructor
KADLEC, ANTON L., M.Ed., Lecturer (part time)
KEMPNER, JACK J., Ph.D., C.P.A., Associate Professor
LANGENBACH, ROBERT, M.A., Instructor
LINE, ROBERT C., M.A., Professor Emeritus
MCALLISTER, RICHARD C., M.A., C.P.A., Assistant Professor
MARKIN, ROM J., M.B.A., Instructor
MARTINSON, ALVHILD, M.Ed., Assistant Professor
PANTZER, ROBERT T., LL.B., Executive Vice President; Professor
PETERS, WILLIAM S., Ph.D., Associate Professor
SMITH, THEODORE H., Ph.D., Professor (on leave 1958-59)
SWANSON, MARGARET (Mrs.), M.Ed., Assistant Professor
WILSON, BRENDAL (Mrs.), M.A., Professor
WISEMAN, DORSEY E., Ph.D., C.P.A., Associate Professor
WORDEN, DONOVAN, JR., LL.B., Instructor (part time)
WRIGHT, JOHN S., Ph.D., Associate Professor

CHEMISTRY
BATEMAN, WILLIAM C., Ph.D., Professor Emeritus
HOWARD, JOSEPH W., Ph.D., Professor
JOHNSON, JANICE (Mrs.), B.S., Instructor (part time)
JOHNSON, WILBUR, B.S., Instructor
JUDAY, RICHARD E., Ph.D., Professor
LOY, EARL C., Ph.D., Acting Academic Vice President; Acting Dean of the Faculty; Professor
OSTERHELD, ROBERT KEITH, Ph.D., Associate Professor
STEWART, JOHN M., Ph.D., Professor
YATES, LELAND M., Ph.D., Associate Professor

ECONOMICS
CALLAWAY, ARCH C., M.A., Assistant Professor (on leave 1958-59)
DYER, GILBERT, M.A., Instructor
ELY, ROY J. W., Ph.D., Professor
HELIKER, GEORGE B., Ph.D., Associate Professor
McEOY, RAYMOND H., Ph.D., Associate Professor
MARTINSEK, THOMAS A., Ph.D., Assistant Professor
SHANNON, RICHARD E., Ph.D., Assistant Professor
SHEARER, HENRY K., Ph.D, Associate Professor; Director, Bureau of Business & Economic Research

SCHOOL OF EDUCATION
AMES, WALTER R., Ph.D., Professor Emeritus
BALDERSTONE, HOWARD, Ed.D., Associate Professor
CARLETON, LINUS J., Ed.D., Dean; Professor
DARLING, RICHARD L., M.A.L.S., Assistant Professor
GEHRBART, JAMES W., M.S., Assistant Professor
GORMAN, ROBERT, E., Ed.D., Director, Counseling and Placement; Associate Professor
HANSON, FRANCES F., M.A., Assistant Professor
JAY, ROBERT H., M.Ed., Assistant Professor
KNAPP HENRY W., Ph.D., Assistant Professor
LOTTICK, KENNETH V., Ed.D., Associate Professor
MADDOK, WILLIAM E., M.A., Professor Emeritus
MATTILL, CHARLES R., M.Ed., Instructor
MILLIS, GEORGE H., Ed.D., Assistant Professor
MUNRO, JAMES J. R., Ed.D., Assistant Professor
SLETTEN, VERNON O., Ed.D., Professor
SMITH, LEO, M.A., Registrar; Professor
WATSON, FRANK J., M.A., Assistant Professor
WHITE, ELAINE, M.A., Executive Secretary

ENGLISH
BANKSON, DOUGLAS, Ph.D., Assistant Professor
BETSKY, SARAH Z. (Mrs.), Ph.D., Lecturer
BETSKY, SEYMOUR, Ph.D., Associate Professor
BIER, JESSE, Ph.D., Assistant Professor
BONER, AGNES V., Ph.D., Associate Professor
BROWN, DOROTHY (Mrs.), B.A., Lecturer (part time)
BROWN, WALTER L., Ph.D., Associate Professor
CARPENTER, NAN C., Ph.D., Professor (on leave 1958-59)
CHARLES, ROBERT A., Ph.D., Assistant Professor
CLAPP, MARY B. (Mrs.), M.A., Associate Professor Emeritus
CLUBB, MERREL D., JR., Ph.D., Assistant Professor
COLEMAN, RUFUS A., Ph.D., Professor Emeritus
FIEDLER, LESLIE A., Ph.D., Professor
FREEMAN, EDMUND L., M.A., Professor
GELFAN, LEWIS D., M.A., Instructor
GILBERT, VEDDER M., Ph.D., Professor
HARRIS, PHYLLIS (Mrs.), M.A., Lecturer (part time)
HENRICH, EDITH (Mrs.), M.A., Instructor
KING, WALTER N., Ph.D., Associate Professor
LAROM, HENRY V., M.A., Assistant Professor
MERRIAM, HAROLD G., Ph.D., Professor Emeritus
MOORE, JOHN E., M.A., Professor
STUMP, REVA, Ph.D., Instructor
VINOCUR, JACOB, Ph.D., Assistant Professor (on leave 1958-59)

THE COLLEGE OF FINE ARTS
ART
ARNOLD, ADEN F., M.A., Professor
AUTIO, A. RUDY, M.F.A., Assistant Professor
DEW, JAMES E., M.A., Associate Professor
HERR, WALTER, M.A., Associate Professor
TURK, RUDY H., M.A., Instructor

BALLETT
COOPER, MARJORIE (Mrs.), Instructor (part time)

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BROWN, FIRMAN H., M.A., Assistant Professor
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EVERSOLE, JAMES, M.Mus., Instructor
EVERSOLE, SYLVIA (Mrs.), M.Mus., Assistant (part time)
GRAY, J. JUSTIN, M.Mus., Associate Professor (on leave 1958-59)
HARLAN, MONAS, M.Mus., Associate Professor
HUMMEL, J. GEORGE, M.A., Assistant Professor

LESTER, JOHN, B.Mus., Professor
MANNING, WILLIAM M., M.Mus., Instructor
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OAKLAND, LLOYD C., M.Mus., D.Mus. (honorary), Professor
RAMSKILL, BERNICE B. (Mrs.), Associate Professor
REYNOLDS, FLORENCE, M.Mus., Associate Professor
RICHARDS, WILLIAM H., M.Mus., Assistant Professor
RICHARD, LUTHER A., D.Mus. (honorary), D.Ed., Dean; Professor
SCHELBERG, BARBARA A., M.Mus., Assistant (part time)
SMITH, FLORENCE M. (Mrs.), Professor Emeritus
WEIGEL, EUGENE, B.Mus., Professor
WEISBERG, A. HERMAN, Professor Emeritus
WENDT, RUDOLPH, M.Mus., Professor
WESTENBERG, RICHARD, M.A., Instructor

FOREIGN LANGUAGES
BERKOFF, DMITRY N., Lecturer (part time)
BISCHOF, PAUL A., M.A., Professor Emeritus
BROWN, SUZANNE (Mrs.), B.A., Lecturer (part time)
BURGESS, ROBERT M., Ph.D., Professor
CANNADAY, ROBERT W., JR., Ph.D., Assistant Professor (Resigned December 31, 1958)
CLARK, WESLEY F., Ph.D., Professor Emeritus; Dean Emeritus of the Graduate School
EPPERON, MARGUERITE H. (Mrs.), M.A., Assistant Professor
HOFFMAN, RUDOLPH O., M.A., Professor Emeritus
JARDINE, LOUIS T., M.A., Instructor
LAPIKEN, PETER P., Ph.D., Assistant Professor
MONTGOMERY, RUBY (Mrs.), M.A., Lecturer (part time)
NONNEMACHER, PATRICIA J. (Mrs.), M.A., Instructor
ORTISI, DOMENICO, Ph.D., Assistant Professor
POWELL, WARD H., Ph.D., Assistant Professor
RIoux, ROBERT N., Docteur de l’Universite de Paris (Lettres), Assistant Professor
SHEPPARD, DOUGLAS C., Ph.D., Assistant Professor
SHEPHERD, DOUGLAS C., M.A., Professor Emeritus
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SORENSEN, THORA, Ph.D., Professor
WEISBERG, FLORA B. (Mrs.), B.A., Assistant Professor Emeritus

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CLARK, F. G., M.S.F., Professor Emeritus
COX, GENE S., Ph.D., Associate Professor
CRAIGHED, JOHN J., Ph.D., Professor; Leader, Montana Wildlife Research Unit
DYSON, PETER J., M.S.F., Instructor
FAUROT, JAMES L., M.F., Assistant Professor
GERLACH, FREDERICK L., M.F., Instructor
HOST, JOHN R., M.F., Assistant Professor
HOWELL, O. B., M.S., Assistant Professor
KRIER, JOHN P., Ph.D., Associate Professor
LABER, ALFRED W., B.S., Instructor
MORRIS, MELVIN S., M.S., Professor
PIERCE, WILLIAM R., M.F., Assistant Professor
SKOK, RICHARD, M.F., Assistant Professor
STEELE, ROBERT W., M.F., Assistant Professor
TABER, RICHARD D., Ph.D., Associate Professor
von DEICHMANN, VOLLRAT, Ph.D., Assistant Professor
WILLIAMS, ROSS A., M.F., Dean; Professor; Director of Montana Forest and Conservation Experiment Station
GEOGRAPHY
BEATY, CHESTER B., M.A., Instructor
BEYER, JACQUELYN, Ph.D., Assistant Professor (on leave 1958-59)
BUCHANAN, RONALD H., Ph.D., Assistant Professor
SHAUDYS, VINCENT K., Ph.D., Assistant Professor (on leave 1958-59)
THOMAS, MORGAN, Ph.D., Associate Professor

GEOLOGY
FIELDS, ROBERT W., Ph.D., Associate Professor
HONKALA, FRED S., Ph.D., Professor
HOWER, JOHN, JR., Ph.D., Assistant Professor
WEHRENBERG, JOHN P., Ph.D., Assistant Professor
WEIDMAN, ROBERT M., Ph.D., Assistant Professor
YALKOVSKY, RALPH, Ph.D., Assistant Professor

HEALTH AND PHYSICAL EDUCATION
CHINSKE, EDWARD S., B.A., Assistant Professor
CLONINGER, E. FAY (Mrs.), Instructor
CLONINGER, LEWIS A., Instructor
CROSS, GEORGE W., M.S., Assistant Professor
DEW, JANE D. (Mrs.), M.A., Assistant Professor
HERTLER, CHARLES F., M.A., Associate Professor
KLEINDIENST, VIOLA K., Ed.D., Associate Professor
LORENZ, MAVIS M., Assistant Professor
POL, ROBERT M., B.A., Assistant Professor
SCHREIBER, WILLIAM E., B.A., Professor Emeritus
STOODLEY, AGNES L., Ed.D., Professor
WILSON, VINCENT, M.A., Associate Professor

INTERCOLLEGIATE ATHLETICS
ADAMS, HARRY F., M.S., Professor; Head Track Coach
BRANBY, DONALD, B.S., Instructor; Assistant Football Coach
COX, FORREST B., B.A., Assistant Professor; Head Basketball Coach
DAHLBERG, GEORGE P., B.A., Professor; Director of Athletics
DAVIDSON, HUGH, B.S., Instructor; Assistant Football Coach
JENKINS, RAY, M.S., Assistant Professor; Head Football Coach
PARRY, TOM, B.S., Instructor; Assistant Football Coach
RINEHART, NASEBY, B.A., Instructor
SHERBECK, HAROLD E., B.A., Instructor; Freshman Football and Basketball Coach; Head Baseball Coach

HISTORY AND POLITICAL SCIENCE
BARNWELL, STEPHEN B., Ph.D., Assistant Professor
BENNETT, EDWARD E., Ph.D., Professor
BROWN, MARGERY (Mrs.), M.A., Instructor
BORDEN, MORTON, Ph.D., Assistant Professor
CARTER, PAUL A., Ph.D., Assistant Professor
HAMMEN, OSCAR J., Ph.D., Professor (on leave February - June, 1959)
HEPPE, PAUL, Ph.D., Assistant Professor
KARLIN, JULES A., Ph.D., Professor
KARPAT, KEMAL, Ph.D., Assistant Professor (on leave 1958-59)
KILCOYNE, MARTIN, M.A., Instructor
MILLER, J EARLL, Ph.D., Professor
PAYNE, THOMAS, Ph.D., Associate Professor
SMURR, JOHN W., M.A., Instructor

NUMBERS
TURNER, BARBARA T. (Mrs.), Ph.D., Assistant Professor
TURNER, ROBERT T., Ph.D., Dean of the College of Arts and Sciences; Professor; Acting Director of Museum
WALDRON, ELLIS L., Ph.D., Dean of the Graduate School; Professor
WREN, MELVIN C., Ph.D., Professor

HOME ECONOMICS
BRISCOE, EMMA N. (Mrs.), M.S., Assistant Professor
CHAMBERLAIN, D. GERTRUDE, B.S., Instructor; Director, Food Service
ETHERIDGE, FANNIE E., M.S., Instructor; Dietitian, Food Service
GLEASON, HELEN, M.A., Professor Emeritus
HOGAN, STEPHEN, M.A., Instructor (Resigned December 31, 1958)
KOTSCHER, LENDAL H., Ph.D., Professor; Consultant, Food Service
LEWIS, VANETTA (Mrs.), B.S., Instructor
LORY, NAOMI (Mrs.), B.S., Instructor
MALOOF, ARLINE (Mrs.), B.S., Head Teacher of University Kindergarten of Family Life Education (Instructor) (half time)
NEWSOM, SHIRLEY, M.S., Associate Professor
PAIN, LORNA J., M.H.E., Head Teacher, Nursery School (Instructor)
PLATT, ANNE C., M.S., Professor

SCHOOL OF JOURNALISM
BLUMBERG, NATHAN B., Ph.D., Dean; Professor
BRIGGS, EDWIN W., LL.M., Professor
CARTER, PAUL A., Ph.D., Visiting Professor (Spring Semester 1959)
CROMWELL, GARDNER, S.J.D., Associate Professor
DUGAN, EDWARD B., M.A., Professor
GARVER, RICHARD A., Ph.D., Assistant Professor
JOHNSON, DOROTHY M., B.A., Assistant Professor (part time)
JORGENSEN, ERLING S., Ph.D., Associate Professor; Director, Radio and Television Studios
KIMBALL, TERRY D., M.A., Associate Professor
LEAPHER, CHARLES W., S.J.D., Dean Emeritus; Professor Emeritus
LEON, SHERMAN V., LL.M., Assistant Professor (part time)
MASS, DAVID R., S.J.D., Professor
RUSOFF, LESTER R., LL.M., Associate Professor
SMITH, RUSSELL, B.A., Assistant Professor (part time)
STONE, ALBERT W., LL.B., Associate Professor
SULLIVAN, ROBERT E., LL.B., Dean; Professor
TOELLE, J. HOWARD, LL.M., Professor Emeritus

MATHEMATICS
BALLARD, WILLIAM R., Ph.D., Assistant Professor
CHATLAND, HAROLD, Ph.D., Professor; Academic Vice President (on leave February - June, 1959)
COWELL, WAYNE R., Ph.D., Assistant Professor
HASHIBAKI, JOSEPH, Ph.D., Associate Professor; Assistant to the Dean of the Faculty
MERRILL, A. S., Ph.D., Professor Emeritus; Vice President Emeritus
MYERS, VERA T. (Mrs.), M.A., Lecturer (part time)
MYERS, WILLIAM M., JR., Ph.D., Associate Professor
OSTROM, THEODORE G., Ph.D., Professor
PETERSON, JOHN A., M.A., Instructor
REINHARDT, HOWARD E., M.A., Assistant Professor
SCHMIDT, WOLFGANG, Ph.D., Assistant Professor
SIMONS, CHARLES R., B.S., Assistant (part time)
YOUNG, FREDERICK H., Ph.D., Associate Professor

MICROBIOLOGY AND PUBLIC HEALTH

ANACKER, ROBERT L., Ph.D., Assistant Professor
EKUND, CARL M., M.D., Lecturer in Virology
FAUST, RICHARD A., Ph.D., Assistant Professor
HOYER, BILL H., Ph.D., Lecturer
LACKMAN, DAVID B., Ph.D., Lecturer in Immunology
LARSON, CARL, M.D., Sc.D. (honorary), Lecturer
MUNOZ, JOHN J., Ph.D., Professor; Director of the Stella Duncan Memorial Fund Research
NAKAMURA, MITSURU J., Ph.D., Associate Professor
ORMSBEE, RICHARD A., Ph.D., Lecturer in Biochemistry
SALVIN, SAMUEL, Ph.D., Lecturer
TAYLOR, JOHN J., Ph.D., Assistant Professor

SCHOOL OF PHARMACY

BRYAN, GORDON H., Ph.D., Associate Professor
MOLLETT, CHARLES E. F., M.S., Professor Emeritus
PETTINATO, FRANK A., Ph.D., Assistant Professor
ROSCOE, CHARLES W., Ph.D., Assistant Professor
SUCHY, JOHN F., Ph.D., Professor Emeritus
VAN HORN, ROBERT L., Ph.D., Dean; Professor
WAILES, JOHN L., Ph.D., Associate Professor

PHILOSOPHY

ADAMCZEWSKI, ZYGMUNT, Ph.D., Assistant Professor
ARMOUR, LESLIE, Ph.D., Assistant Professor
BUGBEE, HENRY G., JR., Ph.D., Professor
MARVIN, EDWIN L., M.A., Professor
SCHUSTER, CYNTHIA A. (Mrs.), Ph.D., Associate Professor

PHYSICS

HAYDEN, RICHARD J., Ph.D., Professor
JAKOBBSEN, MARK J., Ph.D., Professor
JEFFESEN, C. RULON, Ph.D., Professor
SHALLENBERGER, G. D., Ph.D., Professor
TAYLOR, ARCHER, B.S., Instructor

PSYCHOLOGY

AMMONS, R. B., Ph.D., Professor
ATKINSON, E. A., M.A., Professor; Director of the Summer Session
BURGEISS, THOMAS C., Ph.D., Assistant Professor
CHAMBERS, RIGDY W., B.A., Assistant
CLOW, MAURINE, Ph.D., Professor; Associate Dean of Students
COOPER, HOMER C., Ph.D., Assistant Professor
duMAS, FRANK M., Ph.D., Professor
GORDON, JESSE E., Ph.D., Assistant Professor
JAMES, ROBERT L., M.S., Lecturer (part time)

SPEECH

BOEHMLER, RICHARD M., Ph.D., Assistant Professor
BRISSEY, FORREST LEE, Ph.D., Assistant Professor
BUTLER, DONALD, B.A., Assistant (part time)
COOPE, EVELYN SEEDORF, Ph.D., Associate Professor (on leave 1958-59)
GONZALES, FRANK S., B.A., Assistant (Spring Quarter) (part time)
HANEY, TOM, B.A., Assistant (part time)
HANSEN, BERT, M.A., Professor
McGINNIS, RALPH Y., Ph.D., Professor
PARKER, CHARLES D., Ph.D., Associate Professor; Director, Speech Clinic
RHAESA, DONALD L., B.A., Assistant (part time)
SIROIS, LOUIS M., M.A., Lecturer
WINTERS, DENNIS E., B.S., Assistant (part time)

SOCIOLOGY, ANTHROPOLOGY, SOCIAL WELFARE

BROWDER, W. GORDON, Ph.D., Professor
BROWN, BRUCE M., M.A., Instructor
DAY, BARBARA R., Ph.D., Associate Professor (on leave 1958-59)
EVANS, IDRIS W., Ph.D., Instructor
GOLD, RAYMOND L., Ph.D., Assistant Professor
GRIFF, MASON, Ph.D., Assistant Professor
MALOUF, CARLING L., Ph.D., Associate Professor
TASCHER, HAROLD, Ph.D., Professor
TAYLOR, DEE C., Ph.D., Assistant Professor

ZOOLOGY

BARTHELEZ, GEORGE W., Ph.D., Guest Investigator
BERREND, BETTY ANN (Mrs.), M.S., Assistant (part time)
BERREND, ROBERT E., Ph.D., Instructor

AIR SCIENCE

FLETCHER, JACK W., Lieutenant, USAF, B.S., Instructor
HAGOOD, DONALD M., Captain, USAF, B.A., Assistant Professor
HOLSTEIN, JOHN H., Major, USAF, B.A., Associate Professor
JAMISON, DONALD C., Colonel, USAF, B.A., Professor
PERRY, ELMER T., Major, USAF, B.A., Associate Professor

MILITARY SCIENCE (ARMY)

GILBERTSON, RODNEY B., Captain, U. S. Army, B.S., Assistant Professor
HARPER, ROBERT L., Captain, U. S. Army, B.S., Assistant Professor
LEWIS, WILLIAM J., Lieutenant Colonel, U. S. Army, B.A., Professor
THOMAS, ROBERT J., 1st Lieutenant, U. S. Army, B.S., Instructor

RESERVE OFFICERS TRAINING CORPS

AFFILIATED SCHOOL OF RELIGION

CROUCH, WILLIAM, B.D., Campus Minister (Instructor) (half time)
FERM, DEANE W., Ph.D., Associate Professor; Director
JONHSON, GLENN, B.Th., B.D., Campus Minister (Instructor)
TATSUMI, YOSHIKI, Th.D., Associate Professor

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AIR SCIENCE

FLETCHER, JACK W., Lieutenant, USAF, B.S., Instructor
HAGOOD, DONALD M., Captain, USAF, B.A., Assistant Professor
HOLSTEIN, JOHN H., Major, USAF, B.A., Associate Professor
JAMISON, DONALD C., Colonel, USAF, B.A., Professor
PERRY, ELMER T., Major, USAF, B.A., Associate Professor

MILITARY SCIENCE (ARMY)

GILBERTSON, RODNEY B., Captain, U. S. Army, B.S., Assistant Professor
HARPER, ROBERT L., Captain, U. S. Army, B.S., Assistant Professor
LEWIS, WILLIAM J., Lieutenant Colonel, U. S. Army, B.A., Professor
THOMAS, ROBERT J., 1st Lieutenant, U. S. Army, B.S., Instructor

RESERVE OFFICERS TRAINING CORPS

AIR SCIENCE

FLETCHER, JACK W., Lieutenant, USAF, B.S., Instructor
HAGOOD, DONALD M., Captain, USAF, B.A., Assistant Professor
HOLSTEIN, JOHN H., Major, USAF, B.A., Associate Professor
JAMISON, DONALD C., Colonel, USAF, B.A., Professor
PERRY, ELMER T., Major, USAF, B.A., Associate Professor

MILITARY SCIENCE (ARMY)

GILBERTSON, RODNEY B., Captain, U. S. Army, B.S., Assistant Professor
HARPER, ROBERT L., Captain, U. S. Army, B.S., Assistant Professor
LEWIS, WILLIAM J., Lieutenant Colonel, U. S. Army, B.A., Professor
THOMAS, ROBERT J., 1st Lieutenant, U. S. Army, B.S., Instructor

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BRUNSON, ROYAL B., Ph.D., Professor
CASTLE, GORDON E., Ph.D., Acting President; Professor; Director, Biological Station
CRAIGHEAD, JOHN J., Ph.D., Professor
HOFFMANN, ROBERT S., Ph.D., Assistant Professor
HOWELL, BARBARA J., Ph.D., Assistant Professor
SENGER, CLYDE M., Ph.D., Assistant Professor
WEISEL, GEORGE F., Ph.D., Professor
WRIGHT, PHILIP L., Ph.D., Professor

SERVICES

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COONEY, ROBERT F., B.S.F., Research Associate
BALDWIN, DON, B.S.F., Superintendent of Nursery and Supervisor of School Forest
HARVEY, LEROY H., Ph.D., Acting Director; Professor, Botany; Curator of the Herbarium
FISCHER, ROBERT E., M.S. in L.S., Assistant Librarian; Acquisitions Librarian (Assistant Professor)
MIDDETT, ADELAINE S. (Mrs.), B.A., Assistant, Catalog Department (Instructor)
NELSON, RITA (Mrs.), B.A., Assistant Acquisitions Librarian (Assistant Professor) (part time)
SPEER, LUCILE E., M.A., Documents and Serials Librarian (Professor)
WHITE, M. CATHERINE, M.A., Assistant Librarian and Reference Librarian Emeritus (Professor Emeritus)

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BROOKER, DELores (Mrs.), Assistant Head Resident, Freshman Women’s Residence Halls
BERRY, RUTH M. (Mrs.). Head Resident, Elrod Hall
ELLIS, VIRGINIA L., M.A., Head Counselor, Women’s Residence Halls
GORDON, INA C. (Mrs.), Head Resident Emeritus, Corbin Hall
HAZELBAKER, LOIS (Mrs.), B.A., Assistant Head Resident, Freshman Women’s Residence Halls
HUFF, EDITH V. (Mrs.), Head Resident, Freshman Women’s Residence Halls
MOORE, ELIZABETH V. (Mrs.), Assistant Head Resident, Freshman Women’s Residence Halls
PETErs, GRACE BLAKE (Mrs.), Head Resident Emeritus, Elrod Hall
RIMEL, VERA S. (Mrs.), Head Resident, Turner Hall
ROBERTS, FRANK, Head Resident, Craig Hall
SPAULDING, WILLIE (Mrs.), B.A., Assistant Head Resident, Turner Hall
THOMPSON, JANE (Mrs.), Head Resident Emeritus, Corbin Hall

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ETHERIDGE, FANNIE E., M.S., Dietitian; Instructor, Home Economics
GRAY, MARY STEUSSY (Mrs.), M.A., Dietitian (Spring Quarter)
KOTSCHBEAR, LENDAL H., Ph.D., Consultant; Professor, Home Economics
MacARTHUR, ELInAR, B.A., Assistant Director (Assistant Professor) (on leave 1958-59)
WING, ELEANOR F. (Mrs.), B.A., Dietitian

MISCELLANEOUS ADMINISTRATION

ARMSEY, LUCILLE JAMESON (Mrs.), B.A., Secretary to the Pres- ident (Assistant Professor)
BADGLEY, E. KIRK, B.A., Controller (Professor)
BOURKE, MARCUS J., Assistant, Grants and Endowments (Resigned January 31, 1958)
CLARK, S. KIRK, B.A., Auditor, Business Office
FERGUSON, MARY ELROD (Mrs.), M.A., Assistant Director Emeritus, Museum and Northwest Historical Collection (Assistant Professor Emeritus)
GORMAN, ROBERT E., Ed.D., Director, Counseling and Placement Service; Associate Professor, Education
HANSEN, ROBERT, M.D., Director, Health Service (part time)
KRIEGER, FREDERICK, B.S., Superintendent, Buildings and Grounds
LomMassON, EMMA B. (Mrs.), M.A., Assistant Head Resident Emeritus, Wom en’s Residence Halls
MARTELL, KATHLEEN, M.S., Librarian (Professor)
MISCELLANEOUS ADMINISTRATION

Andersen, HOMER E., M.A., Director, Student Activity Facilities (Instructor)
MONAHAN, THOMAS F., M.A., Assistant to the Dean of Students
MURPHY, CALVIN L., B.A., Assistant Controller, Business Office
RYAN, JACK, B.A., Distribution Manager, University Press; Director, News Service
STEWART, GERTRUDE, B.A., Housing and Food Service Accountant
SWEARINGEN, T. G., B.A., Director, Planning and Construction Office
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 100 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.

**ACCREDITATION**

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

**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.

**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.

**CAMPUS AND FACILITIES**

The main campus spreads over 125 acres; and there are extensive adjuncts such as the Golf Course (155 acres), Biological Station (160 acres), Flathead Lake (200 acres), and the Experimental Forest (22,000 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, 90 miles north of the campus at 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. 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.

**THE LIBRARY**

The library building and in the law school library, receives over 1,500 periodicals, and has a collection of more than 32,000 maps.

**THE UNIVERSITY BIOLOGICAL STATION**

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

Facilities include an administration-recreation building, a four-room laboratory, three one-room laboratories, a kitchen and dining hall, three bath houses, thirty-five one-room and eleven two-room cabins, as well as various maintenance buildings.

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.

**THE BUREAU OF GOVERNMENT RESEARCH**

coordinates university facilities and resources for conduct of research in the field of state and local government, and for provisional services to governmental agencies and civic groups. The Bureau also cooperates with the academic departments in developing programs and activities that prepare and train students for careers in government.

**THE BUREAU OF BUSINESS AND ECONOMIC RESEARCH**

provides up-to-date Montana business information with the types of statistics useful to them in conducting their businesses; to disseminate information of general interest on the economic and social aspects of the state; and to engage in studies in the areas of economic and other social sciences which show promise of making contributions to knowledge or to the development of methods of analysis, regardless of whether such studies are directly related to the state.

Publications include the MONTANA BUSINESS REVIEW, issued monthly; THE MONTANA ALMANAC, issued periodically (in co-operation with other University departments); the MONTANA TRADE ASSOCIATION DIRECTORY; issued annually; and various monographs. Contributors include members of the Bureau staff, the faculty, and on occasion, the student body.

**FOREST AND CONSERVATION EXPERIMENT STATION**

is staffed by: Don D. Baldwin (Nursery and Experimental Forest Superintendent), Arnold W. Bolle (Forest Conservation), Robert F. Cooney (Research Associate), William H. Covey (Research Specialist), Gene S. Cox (Forest Soils), Vollrat von Deichmann (Silviculture), Earl McCon nell (Lubrecht Forest Field Assistant), Melvin S. Morris (Range Management), Richard A. Sloc (Forest Economics), Robert W. Steele (Forest Fire Control), Richard D. Taber (Wildlife Management), Ross A. Williams, Director (Watershed Management).

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

"To study the growth and the utilization of timber... To determine the relationship between the forest and water conservation and waterflow 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 maintenance of or the establishment of forest or woodlands... To study and develop the establishment of windbreaks, shelter belts and woodlots on the farms of the State... to study logging, lumbering and milling operations and other operations dealing with the products of forest soils with special reference to their improvement..."

"To cooperate with the other departments of the 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 aforesaid for and in behalf of the State of Montana, such gifts of land or other donations as may be made."

The station is supported by funds appropriated by the Congress and the state of Montana, income from the sale of forest products, nursery products, grazing, mining and special leases, and by private grants. Some research is concentrated on the 22,000 acre Lubrecht Experimental Forest and at appropriate locations throughout the State—much of it in cooperation with private, state and federal agencies.

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

WILDLIFE RESEARCH UNIT. The Montana Cooperative Wildlife Research Unit was established at Montana State University in 1949. The Unit is staffed and supported cooperatively with 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 Memorandum of 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 is 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 requirements 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 Wildlife Management.

The Cooperative Wildlife Research Unit allocates funds for four or more graduate research fellowships for students working 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.

THE TYPOGRAPHICAL LABORATORY AND UNIVERSITY PRESS serves both as a laboratory operation for instruction in the School of Journalism and as a division works directly with communities and groups in community historical pageant-dramas, community surveys, institutes, forums, etc.

The 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.

The division cooperates with the summer school program planning extra-curricular activities such as week-end trips and the use of campus facilities.

The division has published special brochures from each school and department, Home Study and Adult Education offerings. These brochures are used in answering the many requests for information, especially from High Schools.

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 1960 Summer Session will open June 13 and close August 19; the first five-week term, June 13 to July 15; the second five-week term, July 18 to August 19.

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.

THE GRADUATE SCHOOL

The following advanced degrees are conferred by the University:

Master of Arts—Major in Anthropology, Botany, Chemistry, Economics, English, French, Geography, Geology, German, Health & Physical Education, History, Home Economics, Latin, Mathematics, Microbiology, Philosophy, Physics, Political Science, Psychology, Sociology, Spanish, Speech and Zoology.

Master of Science—Major in Botany, Chemistry, Geology, Health & Physical Education, Home Economics, Mathematics, Microbiology, Physics and Zoology.

Master of Arts in: Art, Education, Drama, Guidance, Journalism, Teaching (Majors in Biological Sciences and Mathematics).

Master of Science in: Business Administration, Forest Conservation, Forestry, Pharmacy, Teaching (Majors in Biological Sciences and Mathematics), Wildlife Management, Wildlife Technology.

Master of Education

Master of Forestry

Master of Music—Major in Applied Music, Composition, Music Education

Doctor of Philosophy—Geology

Doctor of Education

GENERAL REQUIREMENTS. General University regulations relating to graduate work and the award of graduate degrees are administered in the Graduate School. Special requirements for particular degrees and programs are listed under the curricula of the departments and schools.
ADMISSION TO THE GRADUATE SCHOOL. A student who is a graduate of an accredited college or university may apply for admission to the Graduate School. The undergraduate preparation must be equivalent to the general requirements for the Bachelor's degree at Montana State University.

To apply for admission, a student must submit a properly completed application and two official transcripts of all previous college work. Letters of recommendation may be requested of an applicant; and applications for graduate assistantships and fellowships must be supported by at least two letters of recommendation from persons qualified to judge the applicant's professional potentialities. Application forms may be secured from the Dean of the Graduate School.

Full graduate standing will be granted to students working toward an advanced degree whose academic records, prerequisites and recommendations are satisfactory. Provisional graduate standing may be granted to students whose records are under question as to accreditation of the college from which they graduated, or who have scholastic deficiencies. After one quarter or more of satisfactory graduate work, students with provisional status may be advanced to full graduate standing upon a review of their status by the major department or school and by the Dean of the Graduate School.

The applicant should have completed an undergraduate major in the field selected for graduate study or in a field acceptable to the staff of the major department and the Dean of the Graduate School. For special requirements, consult curricula of the departments or schools. Students who hold a Bachelor's degree and who have completed 24 credit hours in Education may be admitted to graduate study in the School of Education.

At the discretion of the department or school, exploratory examinations may be administered to aid in determining the applicant's preparation for graduate work.

The Graduate Record Examination is required in the following departments and fields:


Registration for the Graduate Record Examination can be accomplished by payment of the examination fee at the Business Office on or before the second Friday of the quarter in which the examination will be taken. The fee receipt may be retained by the Business Office, but it must show the major field or advanced test in which the registrant is to be examined. The registrant's copy of the examination will be ordered from this Business Office record. The registrant must present his registration for admission to the examination, which will be administered at an announced time and place. The examination may normally be expected at the end of the fifth week of the autumn and spring quarters and at the end of the fourth week of the summer session.

An undergraduate of senior standing in Montana State University who needs no more than nine quarter credits to complete requirements for the Bachelor's degree may enroll in courses for graduate credit, if admitted to the Graduate School.

Members of the faculty of Montana State University above the rank of instructor may not become candidates for degrees from this University. This stipulation does not preclude students of the faculty from taking advanced courses for transfer of credit to another institution.

GRADUATE COURSES. All courses numbered over 499 carry graduate credit. Courses in the 300 and 400 series carry graduate credit only when they have been approved for such credit by the faculty.

GRADES. An average of B must be maintained in all courses taken for graduate credit. Courses in which grades below C have been received are not accepted for degree requirements. Course grades in all courses taken for graduate credit will be included in grade-point computations. A maximum of eight credits of work with grades less than B may be repeated.

COURSE LOAD. Fifteen credits of graduate work in a quarter constitutes a normal graduate registration. In the summer session the normal course load is eight credits for a five-week term and fifteen credits for the full session. The maximum credit load which may be applied toward a degree in a five-week summer term is nine credits and in the full summer session the maximum is 16 credits.

Graduate assistants carry a reduced credit load, usually 10 to 12 hours in a quarter. With administrative approval, regular full-time employees of the University may register for programs of not more than five credits in a quarter.

REGISTRATION. At the time of registration for each quarter, the student's program must be submitted to the Dean of the Graduate School for approval of courses for graduate credit.

EXTENSION AND CORRESPONDENCE COURSES. A maximum of 15 credits earned in extension courses taught by members of the faculty of Montana State University may be accepted toward a graduate degree. Such courses must have been approved for graduate credit by the Graduate Committee. One-third of the residence requirements for the Master's degree may be met by satisfactory completion of fifteen credits in approved extension courses.

Correspondence courses will not be accepted for graduate credit.

THE 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 45 credits required for the Master of Arts degree or one-third of the 15 credits required for the Master of Science degree must be in the major field. The remainder of the work may be in studies approved by his adviser and by the Dean of the Graduate School. A satisfactory thesis must be presented for either of these degrees.

RESIDENCE. The minimum residence requirement for the Master's degree is enrollment for 30 weeks, including at least one full 10-week quarter.

To earn a full quarter of residence for the Master's degree the student must complete not less than five graduate credits of work in any given quarter. Students transferring from Montana State College who have completed one quarter of graduate study in residence at that institution will be required to fulfill only two-thirds of the minimum residence requirement, including one full ten-week quarter.

TIME LIMIT. All requirements for the Master's degree must be completed within a period of eight years, except that a maximum of 15 course credits of graduate work in not more than three courses taken prior to the eight-year period may be validated by departmental examination. These credits must have been earned at Montana State University or at another institution of accepted standing. All such validations must be reported to the Dean of the Graduate School before the student is admitted to candidacy.

TRANSFER OF CREDIT. A student may transfer up to 12 graduate course credits toward fulfillment of requirements for the Master's degree. Residence requirements may not be transferred for the Master's degree except by students from Montana State College. The maximum of 15 course credits and ten weeks of residence if such transfer is approved by the adviser and by the Dean of the Graduate School.

FOREIGN LANGUAGE REQUIREMENT. A reading knowledge of a language other than the student's native language is required of all candidates for the Master of Arts degree in the College of Arts and Sciences and for the Master of Arts in Art and the Master of Arts in Journalism. Candidates for the Master of Science degree in those departments of the College of Arts and Sciences which require a foreign language for the Bachelor's degree must meet this requirement for the Master's degree. The language requirement may be met in any one of the ways outlined in the undergraduate Requirements for Graduation. Proficient use of the English language is required of all candidates for Masters' degrees.
GRADUATE PROGRAM. During the first quarter of graduate training the student must submit to the chairman of the major department or school a tentative program of courses to be taken throughout his graduate degree training. A copy of this program must be submitted to the Dean of the Graduate School.

ADMISSION TO CANDIDACY. A student whose record during the first quarter of graduate residence is satisfactory, including a B average in courses taken for graduate credit, will be admitted to candidacy for the Master's degree. During the second quarter, but not less than two quarters prior to award of the degree, the student must file with the Dean of the Graduate School three copies of an application for admission to candidacy.

THESIS. Not more than 15 credits in Course 699, Thesis, may be applied toward the Master's degree. The subject of the thesis must be approved by the thesis director and by the Dean of the Graduate School.

By the end of the fifth week of the quarter in which the Master's degree is to be conferred the candidate must submit to the Dean of the Graduate School an unbound committee draft of the thesis as approved by the thesis director. This copy will be submitted to the examining committee for possible revision prior to final presentation of the thesis. Final acceptance of the thesis is subject to approval by an examining committee recommended by the department or school and designated by the Dean of the Graduate School. This committee will include at least two faculty members in the major field and one from another department or school.

Three unbound copies of the approved thesis must be submitted to the Dean of the Graduate School. The candidate will pay the costs of binding and the thesis will be bound by the University Library.

ABSTRACT. The candidate will submit two copies of an abstract of the thesis, approved by the thesis director, to the Dean of the Graduate School.

EXAMINATIONS. Each candidate for a Master's degree must pass examinations, which may be oral or written or both, covering his field of graduate study. In addition he will be examined on his thesis by a committee designated in the manner noted above. Examinations must be completed at least one week before the Master's degree is to be granted.

SPECIAL PROGRAMS

In addition to the graduate programs indicated under particular departments or schools, programs involving two or more departments are offered as follows:

SPECIAL REQUIREMENTS FOR THE MASTER OF ARTS IN GUIDANCE AND COUNSELING. In addition to the general requirements for admission to the Graduate School, the following special requirements must be met: Psych 201 and 202, or equivalents, and approval by a committee representing Psychology, Sociology, and Education, since this curriculum is jointly administered by these departments. The committee must also approve the student's program.

Sixty credits are required, including the following courses if not previously taken at undergraduate level: Psych 351-352-353, 360, or 361; Sociology 402 and 405; Educ 454, 455, 532 (4 cr), 594 (Group Guidance 2 cr), and 597; Speech Pathology and Audiology 330. Final written and oral comprehensive examinations are required, but a thesis is not required.

This curriculum is to prepare students for counseling positions in schools, industry, or social agencies. A teaching certificate and teaching experience are usually required to qualify for a guidance or counseling position in elementary and secondary schools.

SPECIAL REQUIREMENTS FOR THE MASTER OF ARTS OR MASTER OF SCIENCE IN TEACHING. The degree is designated as a Master of Arts in Teaching, or a Master of Science in Teaching, according to the teaching major. Majors are presently available in the Biological Sciences and in Mathematics.

In addition to the general requirements for admission to the Graduate School the candidate must have a teaching certificate with an undergraduate major or teaching major in the field in which the graduate degree is sought, and approval by a committee composed of two staff members from the major field and one staff member from the School of Education. This committee, appointed by the Dean of the Graduate School, will also advise the student in the program of study. For the major in Biological Sciences it will comprise one graduate from Botany, one from Zoology and one from Education; for the major in Mathematics it will comprise two members from Mathematics and one from Education.

Specific Requirements for the degree include three options:

A. Forty-five graduate credits with a maximum of 17 outside the major field, with a minimum of 10 of these 17 credits in allied fields, 6-9 credits in Research and Thesis, and final oral examination (written examination may be required).

B. Fifty-four graduate credits including 35 in the major field, 10 in allied fields, 9 credits electives, and final oral and written comprehensive examinations.

C. Sixty credits including 35 graduate credits in the major field, 10 graduate credits in allied fields, and final oral and written comprehensive examinations.

Candidates teaching a science in a secondary school, who lack required work in the sciences, may take 15 credits in lower division science courses to be included in the 60 credits for this option.

THE DOCTOR OF PHILOSOPHY DEGREE

RESIDENCE. At least three full academic years of acceptable graduate study are normally necessary to complete requirements for the degree of Doctor of Philosophy.

A minimum of five quarters, three of which must be consecutive and prior to admission to candidacy, must be spent in graduate residence at Montana State University. To earn a full quarter of residence, the student must complete not less than ten graduate credits in any given quarter.

With prior approval of the department and the Dean of the Graduate School, a student admitted to candidacy may register for and receive residence credit for research done in absentia for the dissertation.

TRANSFER OF CREDIT. Credit for satisfactory graduate study may be transferred from an accepted graduate institution and applied toward the fulfillment of requirements for the Doctor's degree, but only one quarter in residence at Montana State University and after the demonstration of satisfactory performance in graduate courses taken at Montana State University.

MAJOR AND MINOR AREAS. A student normally will spend two-thirds of his time in a major area of study. Work on the dissertation will be considered part of the work in the student's major area. The other third may be devoted to work in one or more minor fields, if such work is approved by the major department.

FOREIGN LANGUAGES. A reading knowledge of at least two languages other than the student's native language is required. The major department, with approval of the Dean of the Graduate School, will determine the languages that are acceptable. The Foreign Language Department will administer the examinations on materials approved by the major department. Proficient use of the English language is required of all candidates for doctoral degrees.

COMPREHENSIVE EXAMINATIONS. Prior to admission to candidacy the student must pass examinations covering the major field of study. These examinations may be oral or written or both, at the discretion of the departments. Minor area requirements, if any, and foreign language requirements must have been completed before the comprehensive examinations may be taken.

ADMISSION TO CANDIDACY. At least two weeks before the comprehensive examinations, the student must file formal application for candidacy for the Doctor's degree. Upon successful completion of the comprehensive examinations, and on recommendation of the department and approval of the Dean of the Graduate School, the student will be advanced to candidacy.

TIME LIMIT. All requirements for the degree must
be completed within five years from the date of admission to candidacy.

DISSERTATION. The candidate must submit a dissertation which demonstrates competence in independent research. The dissertation must be an original contribution to knowledge; it must be presented in acceptable literary form and be of a quality to warrant eventual publication. Individual departments may, at their discretion, require publication.

The candidate will submit three copies of a committee draft of the dissertation and of a dissertation abstract to the Dean of the Graduate School at least three weeks before the date of the final oral examination.

FINAL EXAMINATION. A final oral examination dealing primarily with the dissertation and its relationship to the candidate's fields of study will be conducted by a committee recommended by the Dean of the Graduate School. This examination will be given not later than three weeks before the commencement at which the degree is to be conferred. The examination will be announced by the Dean of the Graduate School one week ahead of its scheduled time and will be open to all members of the faculty.

Two copies of the approved dissertation will be submitted to the Dean of the Graduate School not later than five days before the commencement at which the degree is to be conferred. The candidate will sign the necessary publication agreement; this agreement may contain stipulations regarding time and circumstances for release of the dissertation. The candidate will pay the costs of binding and of microfilm publication.

After the award of the doctorate the dissertation will be microfilmed and bound. Manuscript copies will be deposited in the University Library and one microfilm copy will be made available for interlibrary loan. A positive print of each microfilmed dissertation will be sent to the Library of Congress to be entered in its catalog, and the abstract will be published in Dissertation Abstracts.

If the candidate wishes, he may apply for a copyright. Publication on microfilm does not preclude other forms of publication.

THE DEGREE OF DOCTOR OF EDUCATION

ADMISSION. The student must receive full admission to the Graduate School. In addition, he must have a Master's degree from an accredited institution and must present evidence of successful teaching or administrative experience.

RESIDENCE. A minimum of nine quarters of resident graduate work beyond the Bachelor's degree is required. Forty-five credits beyond the Master's level, exclusive of the doctoral dissertation, must be taken at Montana State University. Thirty of these forty-five credits must be taken in continuous residence and 30 of the last 45 credits must be taken in residence at Montana State University.

To earn a full quarter of residence, the student must complete not less than ten graduate credits in any given quarter.

With prior approval of the School of Education and the Dean of the Graduate School, a student admitted to candidacy may register for and receive residence credit for research done in absentia for the dissertation.

COURSE REQUIREMENTS, DISTRIBUTION, AND QUALITY OF WORK. The candidate will submit a minimum of 40 credits of graduate work in cognate areas is required. The distribution of this work will be determined by advisement.

A grade average of "B" will be required for resident work at Montana State University.

No work of "C" grade will be accepted in transfer from other institutions and no extension credit above the Master's level will be accepted.

COMPREHENSIVE EXAMINATIONS. After 100 credits of approved graduate course work (including work on the Master's degree) have been completed, the student must pass examinations on his selected fields in Education. These examinations may be oral or written or both.

ADMISSION TO CANDIDACY. At least two weeks before the comprehensive examinations, the student must file formal application for candidacy for the doctor's degree. Upon successful completion of the comprehensive examinations, and on recommendation of the School of Education and approval of the Dean of the Graduate School, the student will be advanced to candidacy.

TIME LIMIT. Sixty of the total graduate credits of course work (exclusive of the Doctoral dissertation) offered for the doctorate must have been completed within eight years preceding the granting of the degree.

DISSERTATION. The candidate must submit a dissertation which shows clear evidence of competence in independent investigation. The dissertation may be a mature evaluation of existing knowledge or a contribution to knowledge. In either case it must show mastery of related literature and be written in creditable literary form. Fifteen to thirty credits may be allowed for the dissertation.

The candidate will submit three copies of a committee draft of the dissertation and of a dissertation abstract to the Dean of the Graduate School at least three weeks before the date of the final oral examination.

FINAL EXAMINATION. A final oral examination dealing primarily with the dissertation and its relationship to the candidate's fields of study will be conducted by a committee recommended by the School of Education and designated by the Dean of the Graduate School. This examination will be announced by the Dean of the Graduate School one week ahead of its scheduled time and will be open to all members of the faculty.

Two copies of the approved dissertation will be submitted to the Dean of the Graduate School not later than five days before the commencement at which the degree is to be conferred. The candidate will sign the necessary publication agreement; this agreement may contain stipulations regarding time and circumstances for release of the dissertation. The candidate will pay the costs of binding and of microfilm publication.

After the award of the doctorate the dissertation will be microfilmed and bound. Manuscript copies will be deposited in the University Library and one microfilm copy will be made available for interlibrary loan. A positive print of each microfilmed dissertation will be sent to the Library of Congress to be entered in its catalog, and the abstract will be published in Dissertation Abstracts.

If the candidate wishes, he may apply for a copyright. Publication on microfilm does not preclude other forms of publication.

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 and high school transcript 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.”

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.

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 Preliminary.” 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 person 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 who, in a situation taken in an accredited high school; thus the examinations for those whose work is lacking 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 Education Development (GED) Tests.

CONDITIONAL ADMISSION. A person who has attended an accredited high school for four years, but lacks one course for graduation therefrom 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 transfer student 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 assure his admission to, or reinstatement at, this 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 courses are offered at these units of the University of Montana; consequently, students who change his objective either while continuing in an institution or in changing from one institution to another must expect to lose time and credit. Excess credits earned in completing a two-year course of study 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 the submission of satisfactory evidence that they are prepared to pursue successfully the courses they desire. Such 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 all enrollment requirements for admission to regular standing. A special student may not register for his seventh quarter of residence, including summer sessions, until all entrance units required 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 (or his delegate) of the department or school 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 will graduate 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 classmates, 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 required courses 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 registering 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, six credits plus physical education and ROTC as required; (3) Juniors and Seniors are admitted to regular standing. The completion of a full college course in English Composition or Mathematics 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 students on proper forms and filed at the Registrar’s Office.

WITHDRAWAL FROM A COURSE is permitted during the first five weeks of the quarter with the consent of the adviser and instructor concerned. In these cases a W (withdrawal, no credit) is assigned. A grade of F is assigned for withdrawal from a class after the fifth week. Withdrawals must be formal (on Drop-Add card obtained at the Registrar’s Office) and must be recorded by the student with office after the required signatures are secured.

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 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 A COURSE. When a course in which a student has previously received a grade is repeated, the first grade received is used in computing the grade point average; any credit retaken after the first grade received is automatically canceled and the credit and the last grade received are recorded, even if the second grade is lower. Loss of credit due to repeating a course is the responsibility of the student.

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 departments concerned 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 filed 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 AND MAJORS

Bachelor's, Master's, Doctor of Philosophy, 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.

COLLEGE OF ARTS AND SCIENCES

Bachelor of Arts, with majors in:
- Anthropology
- Biological Science
- Botany
- Chemistry
- Economics
- Economics Political Science
- Economics Sociology
- English
- French
- Geography
- Geology
- German
- Health Physical Education
- History
- History Political Science
- Home Economics
- Latin
- Law

Bachelor of Science, with majors in:
- Air Science
- Health Physical Education
- Bachelor of Science in Medical Technology
- Bachelor of Science in Secretarial Home Arts
- Bachelor of Science in Wildlife Technology

COLLEGE OF FINE ARTS

Bachelor of Arts, with majors in:
- Art
- Drama
- Music

Bachelor of Music, with majors in:
- Applied Music
- Music Education
- Theory Composition

PROFESSIONAL SCHOOLS

Bachelor of Arts in Business Administration
Bachelor of Science in Business Administration
Bachelor of Arts in Education
Bachelor of Science in Forestry
Bachelor of Science in Forest Conservation
Bachelor of Arts in Journalism
Bachelor of Science in Pharmacy
Bachelor of Laws

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 defined 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 I will be changed to an F if the work is not completed during the student's next quarter of residence.

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

GUIDEBOOK GOVERNING GRADUATION. Students must meet requirements of the guidebook in effect when they entered the University, or they may arrange with their department chairmen to graduate under a later guidebook. Students changing majors are governed by the guidebook in effect at the time of such change.

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 the University, or they may arrange with their department chairmen to graduate under a later guidebook; (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 in 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 Arts in Business Administration, Forestry, Journalism, Music, or Pharmacy 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 93 credits in that college. This includes credits in Art and Drama.

CREDITS REQUIRED FOR A MAJOR. Students may be required to complete from 40 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 60 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. 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 towards graduation in that area.

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

Not more than 28 credits in ROTC or 15 credits in religion may be counted towards graduation.

Except in the School of Music, not more than 12 credits in applied music nor 6 credits in ensemble music may be counted towards graduation.

Not more than 12 credits in Ballet, 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, those taking a major or minor in Education, 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.
CREDIT BY EXAMINATION. Under certain circumstances, a student may challenge and receive credit for a course in which he has not been regularly registered. The challenge system does not apply to law or pre-law courses.

Each school or department shall determine for itself which, if any, courses within the department may be challenged. Approval of the dean of the school or head of the department is required before any student may challenge a course for credit.

A student must have a 3-point grade average in all courses in which he has registered and an entering freshman must have a scholastic average equivalent to a 3-point grade average in order to challenge a course.

A student who has credit for equivalent material in high school cannot receive University challenge credit for it.

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

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

A fee of $5.00 will be charged the student for each challenge examination.

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 major 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 teaching majors.

MINIMUM SCHOLASTIC REQUIREMENTS. Students whose work falls far below the C average required for graduation are, under certain circumstances, dropped from the University.

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 him upon his appeal any student at any time.

SPECIALIZATION. A student must select a major field of study before entering the junior year at the 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, a total of 6 quarters (10 credits) required of all freshmen and sophomore men. It is mandatory that this work be accomplished during the first six quarters and cannot be deferred except by petition of the student. For cause this requirement may be waived, entirely or in part, upon approval by the Professor of Military Science and Tactics or Professor of Air Science.

Students who complete the six weeks summer training at the end of their freshman year with the Marine Corps Platoon Leaders Class or with the Aviation Platoon Leaders Class may be exempt from the second year of basic ROTC. Students whose inclusion in one of these programs will take the required ROTC.

Recognized causes and their effects are as follows:

Physical disability as certified by the Health Director—Full Waiver

Equivalent training at another institution—On equivalent basis

Prior federal active military service on full-time basis

Less than six months—None

Six months but less than 12 months—5 quarters

12 months or more—Full Waiver

Two quarters of Air Science 110, Air Force Band, may be substituted for Air Science or Military Science 103 and 203.

(3)Freshman Composition English 104-105, 2 quarters (10 credits) or 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 English 001 without credit 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 groups I, II, and III following. Credits must be included from at least two sub-groups listed for each of groups I, II and III, except that General 131-132-133 INTRODUCTION TO BIOLOGICAL SCIENCES, and 151-152-153 INTRODUCTION TO THE HUMANITIES, will satisfy the requirements to groups I and III respectively.

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, 5 cr. Five credits of Speech are accepted as part of the Group III requirement.

Elementary teachers may fulfill Group I requirements with General 126 PHYSICAL SCIENCE FOR TEACHERS, General 128 BIOLOGICAL SCIENCE FOR TEACHERS, and Mathematics 130 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, and 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 expected of 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 quarter 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 take a placement examination; those who fail to demonstrate an acceptable college standard must take Foreign Language 001 without credit before enrolling in Foreign Language 101, 102, 103. A "C" average is required on all credits previously registered for the Foreign Language requirement.

Six months or more—Full waiver

Three to five months—3 quarters

Less than three months—1 quarter

GROUP REQUIREMENT. All candidates for the bachelor's degree must pass at least five quarters in a language, by taking three quarters or equivalent in one language at the University, or one quarter in each of three languages. Credit for work in languages is earned in accordance with the recommendations of the American Council on Education, and not more than 12
"unassigned" credits at a 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 35 credits and not less than three quarters to resident study at the University; and 35 of the last 45 credits earned for a degree must be earned in resident study at the University.

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

SENIOR EXAMINATIONS. Some departments and schools in the University require a senior comprehensive examination as part of graduation requirements. This examination does not in any way replace the regular quarterly examinations except that departments adopting or using these senior examinations may excuse their major students during the senior year from regular quarterly examinations in major department subjects. The examination is a written examination of at least three hours length, and 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 may be given another opportunity within the next six months without the necessity of registering for more courses. In case of a second failure, further opportunity will be granted at the discretion of the department or school concerned and the committee on 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; (3) The student must take an examination oral or written 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.

FINANCIAL OBLIGATIONS

STUDENT FEES. The following is a detailed schedule of quarterly fees authorized for the college year 1959-1960 in all schools and departments except where otherwise specified. For the Law School, which is on a semester plan, the semester fees will be 50% above the quarterly fees. Fees are subject to modification by action of the State Board of Education.

Registration $10.00
Incidental (for laboratory supplies in all courses, locker fees, gymnasium towel service, diploma, etc.) $30.00
Building $10.00
Student Union Building $4.00
Student Activity $10.00

For support of activities sponsored by the Associated Students of Montana State University.

(Industry of students who have a B.A. or B.S. degree and to students registered for less than seven credits.)

Health Service (Required of all students enrolled for class work.) $74.00
General deposit (charges for loss, breakage, and fines deducted) $10.00

(This deposit, less charges, is refundable after graduation or when schooling is discontinued. Additional amounts will be billed if the balance becomes low.)

Total, first quarter in attendance $84.00
Non-resident (out-of-state) pay, in addition to the fees listed above $65.00 plus $15.00 per quarter Non-resident Building fee $80.00

(If registered for less than 7 credits, the Non-resident fee is based on a charge of $10.00 per credit, plus a $7.50 Non-resident Building fee. Minimum Non-resident fee for Limited Registrants is $27.50, maximum is $67.50.)

Refer to the Music section for information on additional music fees.

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 non-resident fees (autumn, 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 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 $5.00; Student Union Building $2.00; Health Service $10.00; Student Activity $10.00 (optional). Non-residents pay in addition to the above fees, plus a $7.50 Non-resident Building fee (minimum of $27.50, maximum of $67.50). 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 Machine, 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 or library fee in addition to the regular fees. The student activity fee is optional to students who have a B.S. or B.A. degree.

FEES FOR SPECIAL PURPOSES

LATE REGISTRATION, payable by students who did not register during the period designated for registration, unless their late registration was due to the fault of the University. Also payable by students who registered during the prescribed period of registration but who failed to either pay their fees or obtain a deferment. ($1.00 per day to a maximum of $5.00.)
DEFERMENT. In case of an emergency, the Controller is authorized to grant a limited extension of time on payment of fees. If approved, there will be a charge of $1.00 for processing the deferment. Failure to meet payments as agreed, without an authorized extension of the deferment, will result in a penalty of $1.00 per day to a maximum of $5.00.

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 cents each for all additional.

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

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 (including Health fee, if authorized by the Health Department) 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

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<th>Registration ($10.00)</th>
<th>First</th>
<th>Second</th>
<th>Third</th>
<th>Fourth</th>
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<tbody>
<tr>
<td></td>
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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Building ($10.00)</td>
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<td>50%</td>
<td>50%</td>
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<table>
<thead>
<tr>
<th>Student Union Bldg. ($4.00)</th>
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<tbody>
<tr>
<td>Student Activity ($10.00)</td>
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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Non-Resident Tuition</td>
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<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Applied Music</td>
<td>None</td>
<td>None</td>
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</table>

<table>
<thead>
<tr>
<th>Non-Resident Building fee</th>
<th>None</th>
<th>None</th>
<th>None</th>
<th>None</th>
</tr>
</thead>
</table>

| Non-Resident Tuition      | None  | None   | None  | None   |

PAYMENT OF FEES

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 1 of the Session Laws of 1925, enacted by the Nineteenth Legislative Assembly, and other 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 his Montana home 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.

STUDENT SERVICES

At Montana State University student services are coordinated through the offices of the Dean and Associate Dean of Students. Satisfactory student growth, socially, emotionally, and educationally, is the purpose of the program. Student services concerned with the welfare of students include the counseling center, health service, placement service, student housing, student union, student loans, and undergraduate scholarships.

THE OFFICE OF THE DEAN OF STUDENTS has general supervision over all student welfare. Through personal counseling and group activities, the Deans assist in making opportunities available to students for personal-social success, academic achievement, and experiences in the processes of democratic living. The Associate Dean has specific responsibility for all questions of social and academic welfare of women students, and the Dean similar responsibility for men.

THE COUNSELING CENTER has a general function of giving guidance and assistance to students in the following areas: 1) selection of appropriate area of major study; 2) assessment of abilities and the most efficient, effective application of those abilities to allow for maximum learning in college; 3) diagnosis of difficulties leading to less than maximum performance academically, and the use of remedial procedure where indicated; 4) dealing with personality adjustment problems through self understanding in relationship to the client's friends, home, school, and the community as a whole, leading to more effective citizenship; 5) 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.

THE STUDENT HEALTH SERVICE, financed in part by a health service fee paid by students each quarter, provides medical care for students. The plan was developed by the University and the Western Montana Medical Society.

The services are comprehensive and are available at a low cost made possible by group participation and infirmary type facilities. Preventive care and early treatment of illness are stressed. The cost of an illness that might deprive a student of his education is minimized.

All new students are given complete examinations during orientation week by Missoula physicians. These provide a medical record of each student.

The full-time student dispensary is staffed by physicians practicing in Missoula. Laboratory service, x-ray, and limited physical therapy are provided also. Polio and other preventive inoculations are provided at cost.
Consultations and house calls are covered by the health plan up to local scale fee schedules.

Infirmary beds are used for minor illness at no added charge. Hospitalization in Missoula hospitals is provided under the plan for major medical illness, surgical emergencies, and major trauma. The plan pays for 10-day hospitalization at $15 per day, and $100 additional cost.

Obstetrical care and non-emergency surgery are not covered. Accidents and illnesses arising from activities contrary to University regulations or due to use of alcohol are not covered. Dependents' care is not provided.

Hospitalization, as above authorized, is covered outside Missoula, in connection with University activities at any place during school session. It is also covered similarly for 15 days after school closes.

A student is given free choice of local physicians participating in the plan by requesting authorization. Minor illness should be treated at the dispensary.

The Health Service building also houses the Mental Hygiene Clinic and the Speech Pathology and Audiology Clinic which are operated separately.

THE SPEECH AND HEARING CLINIC gives speech tests to all new students each fall, and hearing and amplification equipment available by appointment. Students or their immediate families may receive needed services in the Speech and Hearing Clinic without charge. These services include detailed diagnostic evaluations, consultation and therapy, and referral to other clinics as individual needs are indicated.

THE PLACEMENT SERVICE endeavors to assist University 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 for placement services.

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 includes six residence halls, three housing areas for married students, a women's cooperative house, nine 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 and detailed information may be obtained by writing the Registrar's Office, Montana State University. A $77 prepayment on board and room, which includes a $10 deposit, must accompany 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, or the 10th of March for spring quarter, or the $10 deposit, included in the prepayment, will be forfeited. Students who live in the residence halls normally are required to board in the Lodge.

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 per quarter is assessed the students 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.

Board for the quarter is $141 and $160 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 or 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.

THE WOMEN'S COOPERATIVE HOUSE provides an opportunity for women to gain experience in group living while reducing costs associated with the upkeep of their own homes. There are over 110 resident members present at any given time during the academic year. This residence is under supervision of an approved housemother. Information may be obtained by writing to the President, Synadelphic House, 601 Daly Avenue, Missoula, Montana.

FRATERNITY AND SORORITY HOUSES. Nine national fraternities and six national sororities maintain their own residences under University supervision. Membership in the fraternities and sororities is limited to students of good character. 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 extra-curricular center of student life. It is the home of student social and governmental activities. Every student registered at Montana State University is a member of this 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 rooms, coffee shop, lounge, games room, and food service. Bowling alleys, a year-round skating rink, and a swimming pool are also maintained by the Lodge management.

The Student Arts and Crafts Building offers additional facilities for student crafts, arts, movies, assemblies, etc. LOANS are available to qualified students 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. Students seeking part-time work should register with the Student Placement Bureau. For unusually well qualified freshman students a Work Scholarship program is maintained. Information about 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 requires all its students to conform to the usual standards of society and living citizenship. Every organization affiliated with the University or using its name is required to conduct all its affairs in a manner creditable to the University. Organizations and individuals will be held to this principle.
18—ORGANIZATION

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 to, 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 his absences 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 form.

It is the student's responsibility to notify 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.

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 the Dean of Students Office. Until such 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 ruling: "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 not permitted to be paid in full before the beginning of 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 organizations who refuse to pay their bills. 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.

All social functions of student organizations at which women are present are to be approved by and scheduled with 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 Auditorium-Field House occupies a ground area approximately the size of a standard city block. Moveable 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 used for convocations, commencement exercises, alumni reunions, pageants, horse shows, military drill and formations, concerts, 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 scholastic 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.

INTERCOLLEGIATE 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.

The 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. This 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. It has responsibilities pertaining to the student life of its members.

The Student Judicial Council is 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 de-
developing high social standards among the members of the student body.

The Student Christian Council and Campus Religious Council, 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 the following large organizations: The University Choir, Choral Union, Choral Ensembles, Jubilees, University Symphony Orchestra, University Symphonia, 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 dramatics 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 an 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 women who have maintained high scholarship, demonstrated leadership, and character, and performed outstanding service to the University.

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 freshman women who have maintained high scholarship.

Phi Kappa Phi is a national honorary for women and men 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 selected Advanced AFROTC students. The Society fosters interest in Air Power and development of Air Force Leadership.

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

<table>
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<tr>
<th>Department</th>
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<th>Library Service</th>
<th>Mathematics</th>
<th>Medical Technology</th>
<th>Philosophy</th>
<th>Physical Sciences</th>
<th>Pre-Medical Sciences</th>
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GRADUATE SCHOOL

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
- The School of Music
- Ballet
- Music Education
- Drama
- Elementary Teacher Training
- Secondary Teacher Training
- Voice
- Applied Music
- Organ
- String Instruments
- Wind Instruments
- Theory and Composition

SCHOOL OF FORESTRY

- Forestry
- Conservation
- Forest Management
- Watershed Management
- Forest Engineering
- Soil and Water Conservation
- Wood Utilization
- Wildlife Conservation
- Range Management
- Range Conservation
- Wildlife Management
- Forest Recreation

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.

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.

**EXPLANATION OF SYMBOLS**

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

- 106 (13), 104-105 (11ab) — Course numbers of one, two, and three quarter courses. Numbers in parenthesis were used before the summer of 1957. Unless otherwise stated, 104 is required before 105. 101 is required before 102, and 102 before 105.
- 1Q, 2Q, or 3Q—Follow course title, indicate length of the course in quarters.
- A, W, S, Su—Quarters in which course given: Autumn, Winter, Spring, Summer, respectively.
- 5—Number following quarters in which course given is the number of credits per quarter allowed for the course.
- V or V 1-3 — Variable credit course. Variation may be shown by numbers following V.
- R or R-8—Course may be taken more than once for credit; total credit allowed shown by number following the R.
- (3-4)—Hours of lecture and laboratory required each week of the quarter; lecture is first figure, laboratory the second.
- (0-3/cr.)—Laboratory course in which the student does 3 hours of laboratory per week for each credit.
- a/q—Course may be offered any quarter.
- e/y—Course offered even numbered years only.
- o/y—Course offered odd numbered years only.

Equal, or equivalent course.

Prereq or Prereq 151—Prerequisite, or what must be taken before taking this course. Unless otherwise stated, numbers appearing after "Prereq" are courses within the particular school or department. Instructors must file with the Registrar a "Waiver of Prerequisite" form for any student allowed in a course without meeting the requirement as stated.

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**ANTHROPOLOGY**

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 the pre-literate or primitive societies.

Students may major in Anthropology or a combination of Sociology and Anthropology. The Major of Arts degree is also offered. (See Graduate School.) 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 foreign language is required. (See foreign language requirement in the general section of the Guidebook.)

At least 39 of the 50 major credits must be in anthropology courses. Sociology 101, 205, and 206 and Social Welfare 181 must be completed. Remaining courses for the major may be selected from any courses in the departments of Religion 304, Geography 355 and Speech 318 may be counted toward a major in Anthropology.

**FOR UNDERGRADUATES**

For explanation see Index under "Symbols"

152 (15) ELEMENTARY ANTHROPOLOGY 1Q A W Su 5. Man and his cultures. Culture growth and change.

153 (14) SOCIAL ANTHROPOLOGY 1Q W S Su 4. Institutions as exemplified in primitive religion, economics, political structures, art and music.

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

**FOR UNDERGRADUATES AND GRADUATES**

351 (138) PREHISTORIC CULTURES 1Q W 3 e/y Prereq 152 or 153 or =. Prehistoric man and his cultures, up to the Neolithic, in Europe and the Near East.

352 (129) ARCHAEOLOGY OF MONTANA 1Q S 3 e/y Prereq 152 or 153 or =. 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.

353 (180) ARCHAEOLOGICAL SURVEY Any quarter in which field parties are organized. V 3-5 E-13 Prereq 152 or 153 or =. A field course in Montana Archaeology.

354 (140) OLD WORLD ARCHAEOLOGY 1Q S 4 e/y Prereq 152 or 153 or =. The development of civilization from the Neolithic Age to the dawn of written history.

355 (141) ARCHAEOLOGY OF NORTH AMERICA 1Q W 4 e/y Prereq 152 or 153 or =. The origins, backgrounds and development of pre-Columbian North American peoples and cultures.

358 (156) PHYSICAL ANTHROPOLOGY 1Q W 4 e/y Prereq 152 or =. The history, evolution, and present nature of man's body structures. Identification and determination of age and sex, of human osteological materials.

360 (100) INDIANS OF THE SOUTHWESTERN UNITED STATES 1Q S 3 e/y Prereq 152 or =. Indian cultures in the southwestern United States beginning with the most ancient evidence of man and tracing the development of Indian culture up to, and including, modern tribes.

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

362 (144) INDIANS OF SOUTH AMERICA 1Q W 4 e/y Prereq 152 or 153 or =. The cultures of the Indians of South America.

363 (145) PEOPLES OF AFRICA 1Q S 4 e/y Prereq 152 or 153 or =. The aboriginal cultures of Africa.

364 (147) PEOPLES OF ASIA 1Q S 4 e/y Prereq 152 or 153 or =. The peoples and cultures of Asia, including India, China, Japan, Siberia, and the Near East.

365 (151) INDIANS OF MONTANA 1Q W S Su 3 Prereq 152 or 153 or =. The culture 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.

389 (101) NORTHWEST ETHNOLOGY Any quarter in which field parties are organized. V 1-5 E-15 Prereq 152 or 153 or =. A field course in the history and culture of the Indian tribes of Montana.

391 (181) CULTURE CONFLICT IN COLONIAL AREAS 1Q A 3 Prereq 151 or =. The history, evolution, and present nature of man's body structures. Identification and determination of age and sex, of human osteological materials.

371 (142) CULTURE AND PERSONALITY 1Q A 3 e/y Prereq 152 or 153 or =. The role of culture in the formation of personality.
ART

Art is man's visual means of expression in two and three dimensional form. Creative visual expression has existed since the beginning of man. An art student is concerned with the study of art history, the acquisition of skills to suit his personal needs for expression, and the development of judgment and taste.

A student generally places major emphasis in painting, design, ceramics, or sculpture, although he is expected to work in all areas of art. Personal experience is the basis and point of departure for effective, significant expression in all areas of art. Personal experience is the basis and point of departure for effective, significant expression in all areas of art. Broad general educational background outside of the art field enlarges the scope of personal experience and awareness of one's environment, making possible a greater variety of art productivity.

Those interested in study and development beyond the Bachelor of Arts degree may continue in graduate work leading to a Master of Arts degree. Graduate study requires evidence of a high level of proficiency in both studio and academic work prior to acceptance. Specific requirements may be obtained direct from the Art Department.

Those interested in further study and development beyond the Bachelor of Arts degree may continue in graduate work leading to a Master's degree.

Graduates teach in schools, supervise art programs, teach in colleges, engage in commercial art work or simply set out as freelance artists.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN ART.

In addition to the general requirements for the Bachelor of Arts degree, candidates must complete 45 credits of graduate work distributed as follows: A minimum of 10 credits in art history and theory (Art 371, 372, 375, 390); a minimum of 15 credits in the area of concentration (Art 410, 425 for painting major; 335 and 340 for sculpture majors; 225 and 228 for design major); five to 10 credits on a terminal project and/or thesis (Art 690); minimum of 10 credits in art electives outside major area. Five credits may be taken in non-art electives. The foreign language requirement listed earlier in the guidebook must be satisfied.

SPECIAL REQUIREMENTS FOR THE MASTER OF ARTS IN ART.

In addition to the general requirements for the Graduate School, candidates must complete 45 credits of graduate work distributed as follows: A minimum of 10 credits in art history and theory (Art 371, 372, 375, 390); a minimum of 15 credits in the area of concentration (Art 410, 425 for painting major; 335 and 340 for sculpture majors; 225 and 228 for design major); five to 10 credits on a terminal project and/or thesis (Art 690); minimum of 10 credits in art electives outside major area. Five credits may be taken in non-art electives. The foreign language requirement listed earlier in the guidebook must be satisfied.

FOR GRADUATES

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

123 (23) DRAWING 3Q A W S 3, Su 2 or 4 R-9. Objective and expressive drawing, using varied methods and subject matter.

125-126 (25ab) COLOR AND DESIGN 2Q A W S 3, Su 2 or 4 R-9. Objective and expressive drawing, using varied methods and subject matter.

127-128 (27ab) CRAFTS 2Q A S Su 2. Enter either quarter. Projects using various materials: (127) wood, mosaic, metal, textile; (128) jewelry, enameling, plastics. Offered for one credit by extension.

129 (29b) CERAMICS 2Q W S 2 R-4. Clay projects, building, throwing, firing, and glazing. Offered for one credit by extension.

133-134 (33ab) PRINTING ARTS 2Q A W S 2. Prereq 6 credits of 123. Enter either quarter. Techniques of various graphic media: (133) etching, woodcut, (134) lithography, silk screen.

135 (35) SCULPTURE 2Q W S 3 R-6 Prereq 6 credits of 123. Methods and techniques.

ART, BALLET—21

Balcony 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 ballet.

101 (1) BASIC TECHNIQUES OF BALLET 3Q A W S V 1-3. Fundamentals of body rhythms and coordination.

102 (2) INTERMEDIATE TECHNIQUE OF BALLET 3Q A W S V 1-3 Prereq c/l. Continuation of Ballet 101.

103 (3) ADVANCED BALLET 3Q A W S V 1-3 Prereq c/l. Advanced ballet technique.
BIOLOGICAL SCIENCES deal with living things. The specific sciences are Bacteriology, Botany, and Zoology. Students take courses in each field.

This program provides a basic training in the Biological Sciences. It is designed for those graduates who might have to teach science and biology in high school. Other than teaching, there are very few opportunities for graduates of this program. It is recommended that those students who might do graduate work other than in education, elect the curriculum in either Bacteriology, Botany, or Zoology.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN BIOLOGICAL SCIENCES. 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: 50 or more credits in Biological Sciences, including Botany 110-120 (General Botany), Botany 123 (Spring Flora), or Botany 124 (Summer Flora), Botany 225 (Plant Physiology), Botany 226 (Evolution), Zoology 101-102 (Elementary Zoology), Zoology 106 (Field Zoology), Zoology 201 (Comparative Vertebrate Zoology), Zoology 202 (Human Physiology), Bacteriology 100 (Elementary Bacteriology), General 300 (Correlation of Natural and Human Resources).

The courses in advanced sciences must be completed: Chemistry 101-102 or 121-122-123 (students who plan to do advanced work should take the 121-122-123 sequence); Physics 101-102 (I recommended in order to fulfill the requirements for a teaching minor in the physical sciences) of Physics 111-112-113 or 211-222-223. The following special requirements must be completed for the Bachelor of Science degree: 50 or more credits in the natural sciences, 15 credits in mathematics, 6 credits in social science.

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

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

Besides offering a Bachelor of Arts and a Bachelor of Science degree, the department also offers opportunities for graduate work leading to the Master of Arts and Master of Science degrees in the major areas of botany: Anatomy, Cytology, Ecology, Morphology, Mycology, Physiology, Plant Pathology and Taxonomy. More detailed information can be obtained from the chairman of the department.

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

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN BOTANY. 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 Botany: 52 or more credits in Botany, including Botany 110-120 (General Botany), Botany 123 (Spring Flora), or Botany 124 (Summer Flora), Botany 225 (Plant Physiology), Botany 226 (Evolution), Zoology 101-102 (Elementary Zoology), Zoology 106 (Field Zoology), Zoology 201 (Comparative Vertebrate Zoology), Zoology 202 (Human Physiology), Bacteriology 100 (Elementary Bacteriology), General 300 (Correlation of Natural and Human Resources).

The courses in advanced sciences must be completed: Chemistry 101-102 or 121-122-123 (students who plan to do advanced work should take the 121-122-123 sequence); Physics 101-102 (I recommended in order to fulfill the requirements for a teaching minor in the physical sciences) of Physics 111-112-113 or 211-222-223. The following special requirements must be completed for the Bachelor of Science degree: 50 or more credits in the natural sciences, 15 credits in mathematics, 6 credits in social science.

All majors and graduate students are expected to attend a seminar on the history of Botany. Field trips will be taken.

MASTER OF ARTS OR MASTER OF SCIENCE IN TEACHING. See copy under Graduate School.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

100 (S19) FIELD BOTANY 1q Su 3 (0-15). Given only at Biological Station. The collection of Botany and identification of plants and consideration of where they grow.

111-112 (10ab) FORESTRY BOTANY 2q A W S 5 (3-4). (111) The anatomy and physiology of the higher plants; (112) outlines of the Botany and Physiology of flowering plants. (112) a broad outline of the classification of the flowering plants; tracing of the possible stages in the evolution and development of the vegetative and reproductive structures of plants.

121-122 (11ab) GENERAL BOTANY 2q A W Su 5 (3-4). Enter any quarter. (111) The anatomy and physiology of the flowering plants; (122) a broad outline of the classification of the plant kingdom; tracing of the possible stages in the evolution and development of the vegetative and reproductive structures of plants.

123 (12) SPRING FLORA 1q S 3 (0-6) Prereq 111 or 121. The use of a manual for the identification of the flowering plants. Methods of collecting, pressing, and mounting plants. Field work.

124 (S81) SUMMER FLORA 1q Su 4 (2-6) 3 credits at Biological Station. The use of a manual for the identification of the flowering plants. Methods of collecting, pressing, and mounting plants. Field work.

129 (13) PHARMACEUTICAL BOTANY 1q W 5 (3-4). Anatomy and physiology of plants with particular emphasis upon origin and strict regulation of growth and related phenomena. Outlines of plant classification with particular reference to drug-producing plants.

228 (23) PLANT PHYSIOLOGY 1q A W S 5 (3-4) Prereq 111 or 121, and Chemistry 101-102-103 or 121-122-123. The various processes of plants under controlled conditions in the laboratory and greenhouse.

250 (25) ELEMENTS OF PLANT ECOLOGY 1q S 3 (3-4) Prereq 112 or 122, and 225. An introduction to ecological principles, including interrelationship of environmental factors, primary and secondary succession, plant indicators and vegetation units.

295 (126) EVOLUTION 1q W 3 (3-4) Prereq 121-122, 123, and Zoology 101 or 104-105, and Zoology 106. The theories of evolution from the historical point of view. The evolutionary processes, the evidence for evolution, and the factors of evolution. Credit not allowed for this course and the identical course, Zoology 296.

298 (170) I PROBLEMS IN PLANT PHYSIOLOGY 1q a/v V 2-6 (0-3 cr) Prereq 228 and c/i. Individual or group work consisting of research problems, special readings, discussions, dealing with aspects of plant physiology not taken up in regular courses.

299 (170) II PROBLEMS IN PLANT ANATOMY AND CYTOMETRY 1q a/v V 2-6 (0-3 cr) Prereq 228 and c/i. Individual or group work consisting of research problems, special readings, discussions, dealing with aspects of plant anatomy and cytometry not taken up in regular courses.

300 (170) III PROBLEMS IN MORPHOLOGY 1q a/v V 2-6 (0-3 cr) R-6 Prereq 341 or 342 or 343, and c/i. Individual or group work consisting of research problems, special readings, discussions, dealing with aspects of plant morphology not taken up in regular courses.

301 (170) IV PROBLEMS IN ECOLOGY 1q a/v V 2-6 (0-3 cr) R-6 Prereq 345 and c/i. Individual or group work consisting of research problems, special readings, discussions, dealing with aspects of plant ecology not taken up in regular courses.

310 (31) PLANT ANATOMY 1q A 5 (3-4) Prereq 121, 122, and 123, or =. The origin of organs and tissues and the anatomy of the flowering plants; the classification of the flowering plants; tracing of the possible stages in the evolution and development of the vegetative and reproductive structures of plants.

312 (32) PLANT PHYSIOLOGY 1q A 5 (3-4) Prereq 121, 122, and 123, or =. The chemistry of plant physiology; plant nutrition; plant reproduction; plant indicators and vegetation units.

315 (168) MICROTECHNIQUE 1q a/v but preferably in the spring or fall. 3 credits. Prereq 228 and c/i. Methods of preparing microscopic slides, with emphasis on the preparation of plant sections.

335 (121) PLANT ANATOMY 1q A 5 (0-10) n/y Prereq 121, 122, or 123. Or =. The origin of organs and tissues and the anatomy of the flowering plants; the classification of the flowering plants; tracing of the possible stages in the evolution and development of the vegetative and reproductive structures of plants.

340 (341) MORPHOLOGY OF THE THALLOPHYTES 1q A 5 (3-4) Prereq 121, 122, or =. The morphology and life histories of the algae and fungi.
BUSINESS ADMINISTRATION—23

The School of Business Administration of Montana State University is fully accredited by the American Association of Collegiate Schools of Business and the program of study is divided into two major divisions:

1. The pre-business administration, and
2. The School of Business Administration.

At the undergraduate level the aim of the School of Business Administration is to provide a broad fundamental basis so that the graduate may achieve a place of responsibility in the world of business as well as being a responsible citizen of his community.

Since the individual in business is faced with the difficult intellectual task of problem solving, the student is encouraged through course work and the teaching methods employed to evaluate information and points of view, to reason logically, and to reach sound conclusions. In business courses there is a common emphasis on the over-all management point of view so that the student may achieve an awareness of the many factors that enter into the administration of business affairs and the decision-making of a business. The student is prepared for a variety of jobs by taking a general program of courses or by specializing in such areas as: accounting, finance, marketing, production and personnel management, statistics, secretarial work and business theory. The student is a future business executive.

COURSES OFFERED AT THE BIOLOGICAL STATION

For Graduates

343 (122) MORPHOLOGY OF THE BRYOPHYTES AND PTERIDOPHYTES 1q W o/ 4 (0-6) Prereq 121, 122, 123, or =. The morphology and life histories of the Bryophytes and Pteridophytes.

345 (143) MORPHOLOGY OF THE SPERMATOPHYTES 1q S o/ 4 (0-6) Prereq 121, 122, 123, or =. The morphology and life histories of the gymnosperms and angiosperms.

355 (151) PLANT ECOLOGY 1q S 3 (3-4) Prereq 123, 225, or =. An analysis of the environmental factors, emphasizing interrelationships of habitat and vegetation; the concepts of plant succession, retrogression, plant indicators, and climax vegetation; and the distribution of vegetation in North America.

361 (S174) FRESH WATER ALGAE 1q S 3 (0-7) Given only at the Biological Station. Prereq 121, 122, 123, or =. The morphology and life histories of the algae of the Northern Rocky Mountains.

363 (S176) BRYOPHYES 1q S 3 (0-7) Given only at the Biological Station. Prereq 121, 122, 123, or =. Identification, morphology, and ecology of the Bryophytes of the Northern Rocky Mountains.

365 (190) GENERAL SYSTEMATIC BOTANY 1q S 5 (0-8) Given in summer at Biological Station for 6 credits. Prereq 121, 122, 123, or =. The classification, distribution, life histories and limnological relationships of habitat and vegetation; the concepts of plant succession, retrogression, plant indicators, and climax vegetation; and the distribution of vegetation in North America. Prereq 121, 122, 123, or =. The identification and classification of vascular plants; the classification and ecological distribution of the higher aquatic plants.

370 (125) FOREST PATHOLOGY 1q S 5 (4-3) Prereq 250 or structural timbers.

375 (185) MYCOLOGY 1q A 5 (3-4) Prereq 341 for Botany majors. The classification and relationships of the fungi, with training in their collection, preservation, and culture.

385 (Zool 125) GENETICS 1q A 5 (3-4) Prereq Zool 201 or Bot 225. The mechanics of heredity, involving consideration of mendelian inheritance, linkage systems, chromosomal aberrations, extra-chromosomal inheritance, and their relationship to structure and function.

390 (129) BIOLOGICAL LITERATURE 2q W 1 (2-0) Prereq 20 credits in Botany or Zoology. Student reports of recent literature of investigation and experimentation in biological fields. Credit not allowed for this course and the identical course, Zool 429.

395 (163) AQUATIC FLOWERING PLANTS 1q S 3 (0-7) Given only at the Biological Station. Prereq 121, 122, 123, or =. Sedges, and rushes. The mechanics of heredity, involving consideration of mendelian inheritance, linkage systems, chromosomal aberrations, extra-chromosomal inheritance, and their relationship to structure and function.

400 (159) SEMINAR IN BIOLOGY 1q S 1 (2-0). Special problems in biology. Offered at the Biological Station.

For Graduates

521 RADIATION-BIOLOGY 1q S 5 (6-15) Prereq Bachelor's degree: major preparation in Physics, Chemistry, or Biology, with at least one year of college work in each of the other two fields. An introductory nuclear physics and the influence of nuclear radiation on biological systems. Offered at the Biological Station.

529 ADVANCED PHYSIOLOGY a/q V 2-6 (0-3/cr) Prereq c/l.

539 ADVANCED ANATOMY AND CYTOLOGY a/q V 2-6 (0-5/cr) Prereq c/l.

540 ADVANCED MORPHOLOGY a/q V 2-6 (0-3/cr) Prereq c/l.

551 GENERAL ECOLOGY 1q S 5 (6-15) Prereq Bachelor's degree: major preparation in Botany, Biology, or Zoology. Community concepts including succession, stratification, periodicity, and energy relationships; introduction to population problems. Offered at the Biological Station.

559 ADVANCED ECOLOGY a/q V 2-6 (0-3/cr) Prereq c/l.

569 ADVANCED TAXONOMY a/q V 2-6 (0-3/cr) Prereq c/l.

579 ADVANCED MYCOLOGY AND PATHOLOGY a/q V 2-6 (0-3/cr) Prereq c/l.

600 (200) ADVANCED BOTANICAL PROBLEMS a/q V 2-6 (0-3/cr) Prereq c/l. Original investigations on a research problem under the guidance of a staff member.

699 (299) THESIS a/q V R 1-5

COURSES OFFERED AT THE BIOLOGICAL STATION

100, 124, 249, 361, 363, 365, 366, 386, 399, 490, 521, 549, 551, 569, 600, 699.
d. Complete the course work required in the selected area of concentration as indicated by the appropriate curriculum of the area of concentration below.

e. Offer not less than a total of 75 credits in courses in the School of Business Administration. Courses outside the School of Business Administration which may count toward the 75 credit requirement are: All courses offered by the Department of Economics; English 304; History 333, 374; courses listed in the curricula of the areas of concentration.

f. Present not less than 66 credits (including Health and Physical Education), of work taken in departments and schools other than the School of Business Administration.

$g. Offer 180 credits plus 6 credits in Health and Physical Education.

CURRICULUM OF THE AREAS OF CONCENTRATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION:

ACCOUNTING

Students majoring in accounting will elect the accounting curriculum designed for industrial and commercial accounting or the public accounting profession. Those students desiring to enter the industrial accounting field must complete the following requirements in addition to the basic requirements of the School of Business Administration.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 203-204</td>
<td>Intermediate Accounting</td>
<td>8</td>
</tr>
<tr>
<td>Bus. Ad. 303-304</td>
<td>Cost Accounting</td>
<td>6</td>
</tr>
<tr>
<td>Bus. Ad. 401</td>
<td>Income Tax</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 401</td>
<td>Income Tax</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 401-404</td>
<td>Auditing</td>
<td>8</td>
</tr>
</tbody>
</table>

A minimum of 12 credits chosen from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 301</td>
<td>Advanced Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 305</td>
<td>Governmental Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 405</td>
<td>Accounting Systems</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 406</td>
<td>Managerial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 419</td>
<td>Accounting Seminar</td>
<td>2</td>
</tr>
</tbody>
</table>

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 Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 203-204</td>
<td>Intermediate Accounting</td>
<td>8</td>
</tr>
<tr>
<td>Bus. Ad. 301-302</td>
<td>Advanced Accounting</td>
<td>6</td>
</tr>
<tr>
<td>Bus. Ad. 303-304</td>
<td>Cost Accounting</td>
<td>6</td>
</tr>
<tr>
<td>Bus. Ad. 401</td>
<td>Income Tax</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 401-404</td>
<td>Auditing</td>
<td>8</td>
</tr>
</tbody>
</table>

Students planning to prepare themselves for the uniform C.P.A. examination may find it necessary to include the following recommended courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 303</td>
<td>Governmental Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 402</td>
<td>Income Tax</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 403</td>
<td>Accounting Systems</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 407</td>
<td>C.P.A. Review</td>
<td>5</td>
</tr>
<tr>
<td>Bus. Ad. 389</td>
<td>Business Law</td>
<td>3</td>
</tr>
</tbody>
</table>

BUSINESS EDUCATION

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 183</td>
<td>Advanced Typewriting</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 184</td>
<td>Business English</td>
<td>13</td>
</tr>
<tr>
<td>Bus. Ad. 192</td>
<td>Office Machines Practice</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 192</td>
<td>Beginning Secretarial Practice</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 194</td>
<td>Records Management</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 381</td>
<td>Gregg Shorthand Theory for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 380</td>
<td>Methods of Teaching Shorthand, Typewriting and Transcription</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 381</td>
<td>Methods of Teaching Bookkeeping and Basic Business</td>
<td>2</td>
</tr>
</tbody>
</table>

*Business Education students are not required to take Speech 111, Math 112, Bus. Ad. 250, 355, 355, 446, or 466 and may substitute 363 for 340.

FINANCE

This program is designed to give a broad understanding of the role of finance in our economy including private and public financial institutions, money, credit, and security markets and the technical training necessary in preparation for managerial positions in financial work in large and small scale businesses. Requirements for a concentration in Finance are:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 205</td>
<td>Administrative Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 203</td>
<td>Intermediate Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 234</td>
<td>Real Estate</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 420</td>
<td>Investments</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 421-422</td>
<td>Business Cycles and Business Forecasting</td>
<td>6</td>
</tr>
</tbody>
</table>

GENERAL BUSINESS

This curriculum is designed to give broad training in the field of business. Requirements for a concentration in General Business are:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 205</td>
<td>Administrative Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 341</td>
<td>Personnel Management</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 363</td>
<td>Advertising Principles</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 364</td>
<td>Marketing Management</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 421</td>
<td>Business Cycles and Business Forecasting</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 441</td>
<td>Personnel Management</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 444</td>
<td>Regulation of Industry</td>
<td>4</td>
</tr>
</tbody>
</table>

MANAGEMENT

Two optional areas of concentration are offered in the field of Management:

- Option A. Industrial Organization and Management (Production).
- Option B. Personnel Management and Human Relations

MARKETING

The curriculum in Marketing is designed to prepare students in retailing, wholesaling, advertising, sales and sales administration, and market research. 30 credit hours in the area of marketing, including the following listed courses, are required:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 363</td>
<td>Advertising Principles</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 441-442</td>
<td>Marketing Management</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 444</td>
<td>Regulation of Industry</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 461</td>
<td>Marketing Problems</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 466</td>
<td>Market Survey Research</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 205</td>
<td>Administrative Accounting</td>
<td>4</td>
</tr>
<tr>
<td>English 304</td>
<td>Letter and Report Writing</td>
<td>4</td>
</tr>
</tbody>
</table>

SECRETARIAL SCIENCE

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

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 183</td>
<td>Advanced Typewriting</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 184</td>
<td>Business English</td>
<td>13</td>
</tr>
<tr>
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<td>Office Machines Practice</td>
<td>3</td>
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<tr>
<td>Bus. Ad. 192</td>
<td>Beginning Secretarial Practice</td>
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</tr>
<tr>
<td>Bus. Ad. 194</td>
<td>Records Management</td>
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<td>Bus. Ad. 380</td>
<td>Methods of Teaching Shorthand, Typewriting and Transcription</td>
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</tr>
<tr>
<td>Bus. Ad. 381</td>
<td>Methods of Teaching Bookkeeping and Basic Business</td>
<td>2</td>
</tr>
</tbody>
</table>

*Secretarial Science students are not required to take Speech 111, Math 112, Bus. Ad. 250, 355, 355, 446, or 466 and may substitute 363 for 340.

STATISTICS

This curriculum is designed to provide an understanding of the contributions of statistical methods in all areas of business management, and to equip students to offer a beginning job competence in staff activities employing statistical methods. Requirements for a concentration in Statistics include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.A. 333</td>
<td>Sampling and Statistical Control</td>
<td>3</td>
</tr>
<tr>
<td>B.A. 355</td>
<td>Time Series Analysis</td>
<td>3</td>
</tr>
<tr>
<td>B.A. 466</td>
<td>Market Survey Research</td>
<td>3</td>
</tr>
<tr>
<td>Math 302-303</td>
<td>Statistical Methods</td>
<td>6</td>
</tr>
<tr>
<td>Bus. Ad. 429</td>
<td>Business Statistics Seminar</td>
<td>3</td>
</tr>
<tr>
<td>English 304</td>
<td>Letter and Report Writing</td>
<td>4</td>
</tr>
<tr>
<td>Minimum of eight credit hours of work beyond the introductory course in one of the following areas: Accounting, Finance, Management, Marketing</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.A. 355</td>
<td>Sampling and Statistical Control</td>
<td>3</td>
</tr>
<tr>
<td>B.A. 355</td>
<td>Time Series Analysis</td>
<td>3</td>
</tr>
<tr>
<td>B.A. 466</td>
<td>Market Survey Research</td>
<td>3</td>
</tr>
<tr>
<td>Math 302-303</td>
<td>Statistical Methods</td>
<td>6</td>
</tr>
<tr>
<td>Bus. Ad. 429</td>
<td>Business Statistics Seminar</td>
<td>3</td>
</tr>
<tr>
<td>English 304</td>
<td>Letter and Report Writing</td>
<td>4</td>
</tr>
<tr>
<td>Minimum of eight credit hours of work beyond the introductory course in one of the following areas: Accounting, Finance, Management, Marketing</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
REQUIREMENTS OF THE COMBINED PROGRAMS LEADING TO THE DEGREES OF BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION AND BACHELOR OF LAWS

A combined curriculum is offered 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. The student must satisfy fully the requirements of the School of Business Administration and the School of Law. Students planning to take accounting courses in preparation for the examination for the certificate of Certified Public Accountant, and who desire to complete this combined program in six years, should take elementary accounting in their freshman year and should plan to take one or more quarters of pre-law work.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS IN BUSINESS ADMINISTRATION

To achieve the degree of Bachelor of Arts in Business Administration, the student must satisfy the general university and pre-business administration requirements and, during his junior year in the School of Business Administration, must complete core courses listed above plus 204 A W, 405 (146) ACCOUNTING SYSTEMS IQ, 406 (148) MANAGERIAL ACCOUNTING IQ, 421-422 (156ab) BUSINESS CYCLES AND BUSINESS FORECASTING IQ, 430 (210) CONTROLLERSHIP PRINCIPLES AND PRACTICE, and 502 (210) CONTROLLERSHIP PRINCIPLES AND PRACTICE. Preparation and presentation of audit working papers, reports, and submission of the auditor’s opinion.

405 (141) ACCOUNTING SYSTEMS IQ A W 4 Prereq 204. The principles underlying the design and installation of accounting systems.

406 (148) MANAGERIAL ACCOUNTING IQ S 4 Prereq 204, 304-305, 305-306. Auditing and management accounting. The principles underlying the design and installation of management and control accounting reports specifically designed to aid management.

421-422 (156ab) BUSINESS CYCLES AND BUSINESS FORECASTING IQ. Preparation and presentation of audit working papers, reports, and submission of the auditor’s opinion.

430 (210) CONTROLLERSHIP PRINCIPLES AND PRACTICE. Preparation and presentation of audit working papers, reports, and submission of the auditor’s opinion.

FOR UNDERGRADUATES

ACCOUNTING FOR UNDERGRADUATES

201-202 (11ab) ELEMENTARY ACCOUNTING 2Q A W S Su 4. The basic principles underlying accounting procedures; including the techniques of recording simple business transactions, closing the books, and preparing financial statements. Application of the above principles to developments they apply to individual proprietorships, partnerships, and corporations.

203-204 (12ab) INTERMEDIATE ACCOUNTING 2Q 203 A S, 204 A W 4 Prereq 202. The fundamental accounting concepts and the related problems of income determination and cost accounting. The basic facts with which a layman should be acquainted. Required of all students majoring in business, accounting, or finance.

205-206 (13ab) ADVANCED ACCOUNTING 2Q 205 W S 3, 206 S 4 Prereq. 204. Enter either quarter. Problems of partnerships, installment sales, consignments, branch accounting, receiverships, and the special accounting problems of consolidated statements in the second quarter.

301-302 (11ab) COST ACCOUNTING 2Q 301 W S 3, 302 S 4 Prereq. 204. The methods of accumulating material, labor, and manufacturing costs; the development of specific cost systems applicable to various types of production situations, e.g., job order, process and standard cost systems. Information required for management activities, which includes reports to management, budget preparation, break-even analysis, and cost-volume-profit relationship.

303 (14) GOVERNMENTAL ACCOUNTING 1Q A 3 Prereq 202. Accounting principles and problems as applied to state and local governments, and other public institutions.

401-402 (145ab) INCOME TAX 2Q 401 A W S 3, 402 S 3 Prereq 202. The accounting significance as well as the principles of taxation and the effect of tax statutes as it applies to individuals with problems that emphasize the filing of individual returns; (402) corporate and partnership returns; problems of federal estate and gift taxes. Federal and state tax research.
423 MORTGAGE BANKING 1Q W 2 Prereq 334. The organization and operation of credit and auxiliary agencies, private and governmental, in the urban and rural mortgage banking fields.

424 MONEY MARKETS AND FISCAL POLICY 1Q S 4 Prereq 423. The supply and demand for funds in the short-term and long-term money markets. Analysis of the influence of the money supply on the reserves, institutions, policies, treasury cash balances and refunding operations, and the changing needs and instruments of corporation finance. Designed to develop in the student the ability to analyze and appraise current money market developments.

439 (191) BANKING AND FINANCE SEMINAR 1Q a/a 2.

FOR GRADUATES

520 (221) THEORY AND MANAGEMENT OF CENTRAL BANKING 1Q A 3. The functions and operation of central banking in the commercial banking system. The influence of central banking operations on conditions in the money market and on the general level of business activity.

381 (222) PROBLEMS OF CORPORATE FINANCIAL MANAGEMENT 1Q W 2 Prereq 380. The analytical tools involved in problem solving and in coordination. Emphasis on individual and institutional problems in the formulation of company policy, the nature of the corporation's capital structure, dividend policy, the management of working capital, and the use of security dealers and brokers, and others.

522 (225) SECURITY ANALYSIS 1Q G S 3 Prereq 521. Principles and techniques. Technical preparation for security analysis and work with financial organizations (banks, insurance companies, trusts, investment companies, investment banking firms, security dealers and brokers, and others).

569 (239) THESIS a/a V R-15.

MANAGEMENT

FOR UNDERGRADUATES

241 INDUSTRIAL PURCHASING AND TRAFFIC MANAGEMENT 1Q W 4 Prereq 330, 340, 360. Current purchasing and traffic practices used in the industrial production areas of: materials procurement, inventory control, warehousing, materials handling.

254 (190) AMERICAN INDUSTRIES 1Q S 4 Su 3 Prereq 330, 360. Economic problems and technical problems of manufacturing and communications industries. Location factors, company structures, mergers and competition and national policy relating to oligopoly.

FOR UNDERGRADUATES AND GRADUATES

340 (129) INDUSTRIAL ORGANIZATION AND MANAGEMENT 1Q A W S 4 Prereq Econ 203. Basic production management principles and practices and principles associated with corporate financing of current and long term operations. The nature of security and market relationships and their relationship to corporate financing. Federal legislation affecting the flow of funds to business enterprises. Case problems and readings in current literature will be included. Analysis to the operation of a business, Demand and costs analysis, competitive and non-competitive pricing, and multi-line production and marketing problems.

441-442 (19ab) PERSONNEL MANAGEMENT 2Q 411 A W 4, Su 3, 442, S, Prereq 541. Personnel function in the industrial organization: selection, employee policy and executive development, job evaluation, human relations. (441) Analyzing selected problems such as: job evaluation, executive selection, and personnel planning. (442) Personnel planning and execution, and the management of the sales force; planning, coordination, and control of the marketing function.

444 (182) REGULATION OF INDUSTRY 1Q A W 4, Su 3 Prereq 320, 340, 360 and senior standing or c. Economic concentration and maintaining competition. Changing relationships between government and business. Emphasis on governmental agencies, administrative agencies, national policies and social control.

446 (185) ADMINISTRATION AND BUSINESS POLICIES 1Q A W S 4 Prereq 250, 340, 360. Top-management oriented to develop an integrated view of the corporate specialties. Practice in analytical tools involved in problem solving and in coordination.

449 (191) MANAGEMENT SEMINAR 1Q 2 a/q. Selected projects for developing analytical tools used in general management in the decision-making process.

FOR GRADUATES

510 SEMINAR IN PRODUCTION MANAGEMENT 1Q A 3. Analysis of selected topics involving developing trends in production, technology and management practices.

542 SEMINAR IN MANAGEMENT POLICIES AND PERSONNEL RELATIONS 1Q W 3. Managerial policy problems; the human relationships in personnel approach.

549 GENERAL ADMINISTRATIVE MANAGEMENT PROBLEMS 1Q S 5 Prereq 541. Theory and practice in general management; objectives, planning, policy formulation, organization structuring and executive selection and development.

569 (239) THESIS a/a V R-15.

MARKETING

FOR UNDERGRADUATES

568 SALESMANSHIP 1Q W Su 2. An examination of the fundamental principles and techniques of the selling process, including the pre-approach, approach, demonstration, handling of objections, and the close.

FOR UNDERGRADUATES AND GRADUATES

360 (151) MARKETING PRINCIPLES 1Q A W S 4 Prereq 361. Marketing, marketing institutions, marketing functions, pricing, government regulations, and sales force management, product policy, channels of distribution, merchandising. 1Q W 4 Prereq 360. Product policy, channels of distribution, merchandising, marketing institutions, marketing functions, pricing, government regulations.

361 (161) INDUSTRIAL MARKETING 1Q W 4 Prereq 360. Economic factors affecting marketing policy are analyzed. Deals with buying practices, channels, sales organization, industrial distributors, price, markups and mark downs, advertising, and cost control.

363 (159) RETAILING PRINCIPLES 1Q A 5 Prereq 360. Types of retail stores, location, buying, pricing, display, store selling, advertising, and cost control.

365 (154) ADVERTISING PRINCIPLES 1Q A S 4 Su 3 Prereq 364. The principles and methods of advertising examined from the viewpoint of the businessman.

364 (158) MARKETING MANAGEMENT 1Q W 4 Prereq 360. Management of the sales force; planning, coordination, and control of the marketing function.

365 (152) FOREIGN TRADE 1Q S 4 Prereq 360. (Prereq waived for seniors majoring in Political Science.) Theories, principles and methods of international trade.

366 (151) MARKETING PROBLEMS 1Q A 4 Prereq 360 and 6 other units in mathematics courses. Case studies of problems facing the marketing executive.

464 (160) ADVANCED RETAILING 1Q S 4 Prereq 362. Management problems of large and small retailers. Emphasis on individual and institutional problems in the formulation of company policy, the nature of the corporation's capital structure, dividend policy, the management of working capital, and the use of security dealers and brokers, and others.

465 (132) CREDIT AND CREDIT ADMINISTRATION 1Q W 3 Prereq 350 or Econ 301. The general nature and functions of credit, credit instruments, the credit executive, operation of the credit department, sources of credit information, acceptance of credit risk, establishment of credit limits and collections.

466 (134) MARKET SURVEY RESEARCH 1Q A 3 Prereq 360 and concurrent enrollment in the conduct of sample surveys of consumer behavior, intentions, habits, attitudes, and purchase behavior.

469 MARKET ANALYSIS AND PLANNING 1Q W 3 Prereq 250, 340, 360. Utilization of statistical and accounting techniques in analyzing past and planning future marketing performance.

479 (191) MARKETING SEMINAR 1Q a/a 2 R-6 Prereq 15 credits in marketing and c/a.

FOR GRADUATES

569 (239) MARKETING THEORY 1Q A 3. A critical analysis and synthesis of current literature and marketing from the viewpoint of other disciplines.

699 (239) THESIS a/a V R-15.

SECRETARIAL AND BUSINESS EDUCATION

FOR UNDERGRADUATES

190-191-192 (20abc) ELEMENTARY TYPEWRITING 3Q A W S 2 Prereq Placements for 191-192. Development of basic skills. With 1 H.S. entrance unit, no credit in 191; 2 units, no credit 190, 191.

193 (21) ADVANCED TYPEWRITING 1Q A W S 2 Prereq 192 or placement. Application of basic skills to production jobs.

194-195-196 (22abc) STENOGRAPHY 3Q A W S 5. Theory, dictation, transcription. With 1 H.S. entrance unit, no credit in 194, 2 units, no credit 194, 156.

197-198-199 (23abc) ADVANCED STENOGRAPHY 3Q A W S 5 Prereq 197, 198 or placement, 199, 198 and 196 or placement, 199, 198 and 196 or placement. Review, speed development, Civil Service and State Merit tests. Concurrent enrollment in 198-199.

190-191 (24ab) ADVANCED SHORTHAND TRANSCRIPTION 2Q 2 S 1 Prereq 196 or placement. Concurrent enrollment in 197-198 required.

192 (25) OFFICE MACHINES PRACTICE 1Q A W S 2. Calculators and Adding.

193 (26) BEGINNING SECRETARIAL PRACTICE 1Q A W S 2 Prereq 192. Duplying, dictating and transcribing machines.

194 (27) RECORDS MANAGEMENT 1Q W S 3 Prereq 192 and c/a. Alphabetic, Numeric, Automatic, Geographic, Subject, Decimal, and Soundex filing.

FOR UNDERGRADUATES AND GRADUATES

350 (32a) METHODS OF TEACHING SHORTHAND, TYPEWRITING, AND TRANSCRIPTION 1Q A 2 Prereq 192 or teaching experience in business subjects. Required of teaching majors and minors in Bus. Ad.

351 (32b) METHODS OF TEACHING BOOKKEEPING AND BASIC BUSINESS 1Q A 2 Prereq 201 or teaching experience in business subjects. Required of teaching majors and minors in Bus. Ad.
Practical application to typical secretarial activities. Required of teaching majors and minors in Business Administration.

MACHINES PRACTICE
in teaching newest office machines. Experience, and c/i. Lecture, methods, and rotation-plan techniques in a course of study using the latest methods and materials.

Developing a course of study using the latest methods and materials.

P rereq Math 112. Methods of collection, analysis, and presentation of statistics. Useful and valuable products. Chemistry is also concerned with the energy processes and relations of elements and inorganic compounds, including qualitative analysis. Students who have completed Chem 101-102-103 may not receive credit for 121-122, but are eligible for credit in 123.

Advanced Courses in Chemistry (see above)

FOR UNDERGRADUATES
and graduates. The basic laws, properties and reactions of elements and compounds. For students desiring a one year general course only.

FOR GRADUATES
The techniques in preparation of inorganic compounds, including qualitative analysis. Students who have completed Chem 101-102-103 may not receive credit for 121-122, but are eligible for credit in 123.

The use of modern techniques and methods of qualitative analysis. The principles and theories of chemistry, properties and reactions of elements and inorganic compounds, including qualitative analysis. Students who have completed Chem 101-102-103 may not receive credit for 121-122, but are eligible for credit in 123.

FOR UNDERGRADUATES
and graduates. The basic laws, properties and reactions of elements and compounds. For students desiring a one year general course only.

FOR GRADUATES
The techniques in preparation of inorganic compounds, including qualitative analysis. Students who have completed Chem 101-102-103 may not receive credit for 121-122, but are eligible for credit in 123.
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 prepare him to teach and direct in the high school theater; to prepare him for graduate work in theater; and to relate through the study of the art of the theater the place of theater in the societies of the past and the present.

Montana State University graduates in theater and drama are presently teaching in high school theater; teaching in 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 earlier, the following special requirements must be completed for the Bachelor of Arts degree with a major in drama. Drama 122, 121, 131, 132, 140 (2 cr), Speech 241, 341, 343, 344 or 345. English 118, 251, English 241, 243, 343, 344, 345. Physical Education 101 (20). Special topics in advanced inorganic chemistry.

CHEMISTRY OF THE LESS FAMILIAR ELEMENTS 1Q a/q 3 (3-0) Prereq 352.

PHYSICAL ORGANIC CHEMISTRY 1Q a/q 3 (4-0) Prereq 373 and 464. Kinetics of organic reactions.

RESEARCH a/q V.

THESIS a/q V R-15.
lighting, stagecraft, backstage organization, stage design, acting, directing, rehearsal and performance, business, and house organization and management.

401-405 408 (108) THEATER PROJECTS 3Q a/q V 2-4 Prereq 10 credits in drama courses in English 207-308-309, 341-342-343, and demonstrated ability in theater and drama; to others with c/q on basis of much past work in directing, music, or costume engineering. (1) to provide the student with experience in design, lighting, costume design, direction, playwriting, study of drama.

422 (183) ADVANCED DIRECTION 1Q S 3 Prereq 121, 123 and 125. Techniques and principles of directing one play. Principles of producing farce, fantasy, comedy, melodrama, tragedy.

431 (197) STAGE DIRECTION 1Q W 3 Prereq 231, 251, Art 123 and 125 or c/q. The principles of stage design and the relation of the scene to the play. Practice in design of stage settings.

441 ADVANCED MAKEUP IQ S 2 Prereq 251 or experience c/q and principles. Principles and techniques of creating makeup for characters from dramatic literature. FOR GRADUATES

511-512-513 (181) SEMINAR 2Q a/q V 2-4 Prereq 10 credits in drama courses or in English 308-309, 341-342-343, and c/q. The student may study the plays of a dramatist, inform himself about actors or playwrights, theaters, or movements in drama.

521 THEATER ADMINISTRATION 1Q A 3 Prereq c/q. Administrative and organizational techniques in the operation of theater producing organizations.

531 SEMINAR IN HIGH SCHOOL THEATER PRODUCTION IQ W S 2-3 Prereq 231 of the senior year in a high school or by permission of the Department of English with particular emphasis on direction and training of high school students.

541 ADVANCED PLAYWRITING IQ W V 2-4 R-S Prereq Eng 306. Creative writing of the student's choice. Structure, characterization and dialogue as used in the play form.

690 Thesis a/q V 2-5-15.

ECONOMICS is that branch of the social sciences which deals with man's efforts to satisfy his wants by utilizing the scarce means provided by nature. The department considers its teaching goals to be three-fold:

1. To present to students the basic theoretical tools of economic analysis, relevant facts and institutional material, which will assist them as civic leaders. (2) To introduce students majoring in economics to the various specialized fields of study within economics. This training along with extensive work in the other liberal arts and sciences, is intended to instill breadth of intellectual interest, critical habits of thought, a problem-solving attitude, and facility of expression. (3) To help meet, by teaching, the various special fields of study within each student's interests.

ECONOMICS-LAW COMBINATION. In addition to the general requirements for graduation listed earlier in the guidebook, a minimum of 50 credits in economics must be earned in three years. First year of law will complete requirements for the Bachelor of Arts degree with a major in economics. Students should take as many of the following courses as possible: History 343, 345, 368; Political Science 375, 378; Business Administration 273, 275. Letin is recommended for meeting the foreign language requirements.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

101 (103) CULTURAL ECONOMICS 1Q W 2, 3. Institutional development of economic society, nature, origins and problems of modern capitalism.

201-202-203 (14ab) PRINCIPLES OF ECONOMICS 3Q a/q 3. (201) Theory of demand and supply as regulator of money and its use, economic instability; (202) Markets, value and price; (203) Functional distribution of income; selected economic topics.

211-212-213 (17ab) ECONOMIC GEOGRAPHY (See Geography.)

FOR UNDERGRADUATES AND GRADUATES

301 (180) MONEY AND FINANCE 1Q W S 4 Prereq 203. Role of money; banks as suppliers of money; Federal Reserve System as regulator of money; monetary theories, history and policy.

303 (108) SOCIAL SCIENCE METHODS (See Sociology.)

304 (104) PUBLIC FINANCE 1Q W Su 4 Prereq 203. Principles and problems of Federal financing.

305 (105) STATE AND LOCAL TAXATION 1Q S Su 4 Prereq 203. Revenues and expenditures on state and local levels.

311 (111) INTERMEDIATE ECONOMIC THEORY 1Q A 4 Prereq 203. Methods and concepts of economics, cost and price analysis.

315-316 (112ab) DEVELOPMENT OF ECONOMIC THEORY 2Q W 4, S 2, 3 Su 3 Prereq 203. (315) Economic ideas from early times to 1890; (316) Economic development from 1890 to the present.

311-322 (113ab) LABOR ECONOMICS 2Q A W Su 3 Prereq 203 or c/q. (311) Institutional and legal background of labor problems; (322) Economics of labor markets.

324 (114) INDUSTRIAL RELATIONS 1Q S 3 Prereq 203 or c/q. Problems and public policy in labor-management relations.

325 (120) SOCIAL SECURITY 1Q S 3 Prereq 203. Theoretical analysis and problems of public policy.

331-332 (117ab) INTRODUCTION TO INTERNATIONAL ECONOMICS 2Q A W W 4, S 2, 3 Su 3 Prereq 203. (331) Theoretical analysis; (332) Problems of policy-making.


340 LOCATION OF ECONOMIC ACTIVITY 1Q S 3 Prereq 203. Spatial relations of economic activities, selection of locations for private and public facilities, land utilization, regional planning, industrial development.

344 (109) WORLD RESOURCES AND INDUSTRIES 1Q S 4 Prereq 203. Development of resources theory and a functional approach to the availability of agricultural and industrial resources.

365 (103) PUBLIC UTILITY ECONOMICS 1Q A 3 Prereq 203. History, regulation, rate-making, public versus private power.

370-376 (105ab) ECONOMICS OF TRANSPORTATION 2Q A W 3 Prereq 203. (370) Economic significance, systems, freight rates and their relations to location of industry; (376) Waterways, highways, pipelines, and airways.

374 (130) COMPARATIVE ECONOMIC SYSTEMS 1Q S 4 Prereq 203. Capitalism, fascism, socialism, communism; evaluation.

378 MONOPOLY AND COMPETITION 1Q W 3 Prereq 311. Theories and imperfect markets and market competition as applied to public policy.

378 (115) ECONOMICS OF MONTANA 1Q W Su 3 Prereq 203. Factors and forces determining the economic well-being of the people of Montana.

380 (110) AGRICULTURAL ECONOMICS 1Q A 4 Prereq 303. Agricultural industry, supply and demand for farm products, farm finance, taxation, agricultural policies.

392 (107) CONTemporary AGRICULTURE PROBLEMS 1Q S 3 Prereq 203.

405 (125) MONETARY THEORY 1Q W 4 Prereq 301. Relationships between money, credit and economic activity.

410 (190) ADVANCED ECONOMIC ANALYSIS 1Q S 4 Prereq 25 credits in economics including 311.

420 INTRODUCTION TO ACTIVITY ANALYSIS 1Q S 3 Prereq 311. Math. 151, and c/q. Linear programming and input-output analysis.

490 (190) ADVANCED PROBLEMS a/q V 1-2 R-S Prereq 12 credits in economics c/q.

495 (195) SEMINAR IN ECONOMICS a/q V 1-2 R-S Prereq 16 credits in economics and c/q.

FOR GRADUATES

Students desiring to take graduate work in economics must be admitted to the Graduate School, have the equivalent of undergraduate work in economics required of majors, and show capacity to profit from graduate courses. To obtain a Master's degree, the student must earn credits in each of the following: Economics 406, 410, 495, and 699.

501 (201) GRADUATE RESEARCH a/q V R-S.

690 (299) THESIS a/q V R-S.
EDUCATION

The introduction of youth into America's complex culture has become a major task of the schools and a challenge to all teachers. The problem is intensified by the steadily increasing numbers of children who must be educated. This creates a growing need for teachers at all levels of elementary, secondary, and college and requires that over half of the college graduates each year train for the profession of teaching.

Developing teaching competence involves securing a liberal education with special study in the fields in which the student is to teach, and study and practice in the area of teaching. In addition, the teacher must develop an appreciation for individuals and as members of society because systematic application of knowledge 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 planned in terms of the particular fields in which the student expects to teach.

Many University graduates who wish to remain in Montana but teaching is a stimulating career which knows no geographical boundaries and Montana State University graduates are prepared to teach throughout continental United States and its territories. In increasing numbers, American teachers find teaching assignments available to them in foreign lands.

After they have been granted a Bachelor's degree and have been certified to teach, persons in Education may take advanced work at the graduate level which will prepare them for specialized positions such as school administrator, supervisor, counselor, curriculum coordinator, and research director; or they may use to build up their backgrounds in the field or fields in 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 school 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 Agriculture, Business Administration, Foreign Languages, Health and Physical Education, Home Economics, Journalism, Mathematics, Music, and Religion.

GENERAL INFORMATION. The School of Education at Montana State University is fully accredited by the National Council for the Accreditation of Teachers and is a member of the Northwest Association of Secondary and Higher Schools.

It prepares students for teaching, supervising, or administering in the public schools; for school library services; 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 Education: those preparing for library work major in Education or in Library Service; those preparing for counseling, supervising, administrative or teaching work 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.

To enroll in courses in Education, a student must have at least a C average in all course work for which credit has been received. 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, 20 credits in the teaching major and 20 credits in the teaching minor.

REQUIREMENTS FOR ADMISSION. Pre-education students preparing for secondary teaching should consult with their advisers as to courses to be taken in their freshman and sophomore years. In addition to those courses given for Education, they should take all the courses required of 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 major in the elementary grades of Education must have at least a C average for all credits earned.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN EDUCATION. As an additional general requirement for graduation listed earlier in the 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 24 credits: Education 200, 202, 301, 302, 306, 315, 344 (10 credits), 460 and 462 or their equivalents, 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 a teaching major and 30 or more credits in a teaching minor. Requirements for teaching majors and minors in various areas will be found in the last few pages of the Education section of the guidebook.

Suggested curriculum in secondary education:

Freshman Year

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<td>Engl 104-105—Freshman Composition</td>
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<td>Genl 125—Freshman Biol Sci</td>
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<td>Genl 151-152—Intro to the Humanities</td>
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<td>Psy 110—Introduction to Psychology</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 (to fulfill Group II Requirements)</td>
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<td>Educ 200—Intro to Education (a/q)</td>
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<td>Teaching Major Sequence (listed later)</td>
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<td>Educ 205—Educational Psychology</td>
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<td>Electives</td>
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<td>HPE 201-202-203—Soph. Physical Education</td>
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<td>ROTC 201-202-203—Military or Air Science</td>
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<td>Educ 205—Educational Psychology</td>
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<td>Educ 260—Secondary School Teaching Procedures</td>
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<td>Educ 312—The School Library in Teaching</td>
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<td>Educ Methods Course (in one or both teaching areas)</td>
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<td>Teaching Major Sequence (listed later)</td>
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Senior Year

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<td>Educ 405—Student Teaching: Secondary (any two areas)</td>
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<td>Educ 450—Guidance in the Elementary and Secondary School</td>
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<td>Educ 452—Educational Measurement</td>
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<td>Elective Courses in Education</td>
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<tr>
<td>Teaching Major or Minor Sequence, or Electives</td>
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PREPARATION FOR TEACHING IN THE ELEMENTARY GRADES. Candidates must earn a minimum of 40 credits in Education, including the following required courses totaling 32 credits: Education 200, 202, 301, 302, 306, 315, 344 (minimum of 10 credits); and elective courses totaling 4 or more credits selected from other courses in Education.

All students who major in the elementary grades should major in Education; those preparing to teach particular subjects, either in junior or senior high schools, major in the principal subject to be taught or in Education; those preparing for library work major in Education or in Library Service; those preparing for counseling, supervising, administrative or teaching work 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.

To enroll in courses in Education, a student must have at least a C average in all course work for which credit has been received. 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, 20 credits in the teaching major and 20 credits in the teaching minor.

Their major courses in Education should include the following courses totaling 32 credits:

Genl 125—Physical Science for Teachers

Genl 151-152—Intro to the Humanities

HPE 201-202-203—Soph. Physical Education

HOTC 101-102-103—Military or Air Science

It is recommended that elementary teachers take the following Health and Physical Education courses as part of their required work in Physical Education during the freshman and sophomore years: men, 115, 116, 118; women, 116, 117, 118, 120.

Suggested curriculum in elementary education:

Freshman Year

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<td>Engl 104-105—Freshman Composition</td>
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<td>Genl 125—Physical Science for Teachers</td>
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<td>Hist 101-102—The Development of Western Civilization</td>
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<td>Math 120—Theory of Arithmetic</td>
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<td>Perc 110—Introduction to Psychology</td>
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<td>HPE 101-102-103—Freshman 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>Engl 104-105—Freshman Composition</td>
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</tr>
<tr>
<td>Genl 125—Physical Science for Teachers</td>
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<tr>
<td>Hist 101-102—The Development of Western Civilization</td>
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<tr>
<td>Math 120—Theory of Arithmetic</td>
<td>5</td>
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<tr>
<td>Perc 110—Introduction to Psychology</td>
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<td>HPE 101-102-103—Freshman Physical Education</td>
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Junior Year

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<td>ROTC 101-102-103—Military or Air Science</td>
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Senior Year

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Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Educ 200—Introduction to Education</td>
<td>4</td>
</tr>
<tr>
<td>Educ 201—The Elementary School Child</td>
<td>3</td>
</tr>
<tr>
<td>Engl 231-232-233—Intro to Major American Writers</td>
<td>3</td>
</tr>
<tr>
<td>Geog 210—Elements of Geography</td>
<td>3</td>
</tr>
<tr>
<td>Music 121-122-123—Music Educ. in Elementary Schools</td>
<td>3</td>
</tr>
<tr>
<td>P Sc 101—Introduction to Government</td>
<td>4</td>
</tr>
<tr>
<td>P Sc 205—American Government</td>
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</tr>
<tr>
<td>Psych 110—Child and Adolescent Psychology</td>
<td>4</td>
</tr>
<tr>
<td>H&amp;PE 199—First Aid</td>
<td>2</td>
</tr>
<tr>
<td>H&amp;PE 231—Sophomore Physical Education</td>
<td>2</td>
</tr>
<tr>
<td>ROTC 201-202-203—Military or Aeronautical</td>
<td>2</td>
</tr>
<tr>
<td>Electives</td>
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<td><strong>Total Credits</strong></td>
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Junior Year

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<tr>
<td>Art 303-304—Elementary School Art</td>
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</tr>
<tr>
<td>Educ 301-302-303—The Child and the Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>Educ 318—Supervision and Teaching of Science</td>
<td>4</td>
</tr>
<tr>
<td>Resources</td>
<td>3</td>
</tr>
<tr>
<td>Educ 330 Children’s Literature</td>
<td>4</td>
</tr>
<tr>
<td>Genl 300—Conservation of Natural and Human Resources</td>
<td>4</td>
</tr>
<tr>
<td>Hist 251-252-253—United States History</td>
<td>4</td>
</tr>
<tr>
<td>H&amp;PE 338—Teaching Phys Ed in the Elementary School</td>
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<td>Electives</td>
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Senior Year

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<td>Educ 404—Student Teaching: Elementary (a/q)</td>
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<td>H&amp;PE 373—School Health Problems</td>
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<tr>
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RECOMMENDATIONS FOR MONTANA TEACHING CERTIFICATES

Montana State University recommends its graduates who meet state certification requirements to the State Department of Public Instruction. All such recommendations must be approved by the Dean of the School of Education. Students who earn a degree in the elementary grades for requirements because they differ in various states.

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

1. A Bachelor's degree from Montana State University, or other approved institution of higher education.
2. Twelve or more quarter credits in Education designated by the Dean of the School of Education (see Preparation for Certification, by Degree, below).
3. A teaching major (45 or more credits) and a teaching minor (30 or more credits) in fields commonly taught in high schools (see below). Students planning to teach in the secondary grades are required to file with the School of Education at least two quarters preceding the quarter in which they desire to take the required course in the elementary school.
4. Specific requirements in general education that have particular reference to teaching in the elementary grades.
5. Students who expect to be certified to teach in the secondary grades are required to file with the School of Education at least two quarters preceding the quarter in which they desire to take the required course in the elementary school.
6. To meet the requirement for certification, students must earn a minimum of 90 credit hours in Education, and must meet the requirement for graduation for the Bachelor of Arts or Bachelor of Science degree.
7. The candidate must prepare a professional paper for which 3 to 4 credits may be allowed. The paper will show that the candidate has practical problem growing out of the student's administrative or teaching experience and should be submitted in writing.
8. The candidate must pass the required examinations covering the field of education. The examination fee is paid by the student's institution of instruction. The student must pay the fee and submit the completed examination to the School of Education.

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

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>Prefull or pre-Junior year: Pscy 110 (not counted among the 25 credits required for secondary certification)</td>
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<tr>
<td>Educ 200—Introduction to Education</td>
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<tr>
<td>Educ 301-302-303—The Child and the Curriculum</td>
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<td>Educ 318—Supervision and Teaching of Science</td>
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<td>Hist 251-252-253—United States History</td>
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<tr>
<td>H&amp;PE 338—Teaching Phys Ed in the Elementary School</td>
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<tr>
<td><strong>Total Credits</strong></td>
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SEQUENCE OF CERTIFICATION COURSES IN ELEMENTARY EDUCATION

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<td>H&amp;PE 231—Sophomore Physical Education</td>
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<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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SPECIAL REQUIREMENTS FOR THE MASTER OF ARTS IN EDUCATION

SPECIAL REQUIREMENTS FOR THE MASTER OF ARTS IN GUIDANCE AND COUNSELING, AND MASTER OF ARTS OR MASTER OF SCIENCE IN TEACHING. See copy under Graduate School.

FOR UNDERGRADUATES

For explanation see separate symbols

400 (20) INTRODUCTION TO EDUCATION 1Q A W S Su 4

202 (22) THE ELEMENTARY SCHOOL CHILD 3Q A W S Su 3
Prefer 200 and 202. Principles of growth and development and the psychology of learning as applied to the elementary school child. A minimum of 2 hours per week will be spent in observation of children in the schools.

205 (25) EDUCATIONAL PSYCHOLOGY 1Q A W S Su 4
Prefer 200 and Pscy 110. The growth and developmental characteristics of adolescents. Psychological foundations of learning in the junior and senior high schools.

210 (41) OUTDOOR EDUCATION 1Q Su 2
Outdoor activities and materials to enrich the elementary science program.

301-302-303 (24bc) THE CHILD AND THE CURRICULUM 3Q A W S 3, Su 3
Prefer 200 and 202. Principles of growth and development and the psychology of learning as applied to the elementary school child. A minimum of 2 hours per week will be spent in observation of children in the schools.

305 (25) SECONDARY SCHOOL TEACHING PROCEDURES

1Q A W S Su 5, Su 3
Prefer 200 and 205. Methods of planning, presentation, evaluation, and interpretation; material selection, teaching methods, motivational, observation, and related activity involving student participation.

311 (41) ADMINISTRATION OF THE SMALL PUBLIC AND COMMUNITY SCHOOL 1Q A W S Su 1
Prefer 200 and 205. The techniques of administration by library service, library routines and procedures, library buildings and equipment, the library's place in governmental organization, library extension work.

404 (28) STUDENT TEACHING: ELEMENTARY 1Q A W S Su V R-15
Prefer 301-302-303, 318 and consent of Director of Student Teaching. Students will do supervised teaching in cooperating schools in Montana. Weekly meetings with the University Supervisor. Ten credits are required for elementary certification. The student must spend at least one half day morning or a full afternoon in the elementary school classroom during student teaching.

405 (25) STUDENT TEACHING: SECONDARY 1Q A W S Su V R-15
Prefer 301-302-303, 318 and consent of Director of Student Teaching. Observation and supervised teaching in Montana public
school under the supervision of co-teaching and staff members of the School of Education, weekly meetings with the University Supervisor required. A minimum of 3 credits is required, with satisfactory certification.

445 LIBRARY PRACTICE 1Q A W S Su 5 Prereq 20 or more hours in Library Service and consent of Director of Library Service. General practice in library routines in a school, public or college library under the supervision of a trained professional librarian. Weekly meeting with Director of Library Service.

FOR UNDERGRADUATES AND GRADUATES

311 (121) SUPERVISION AND TEACHING OF THE LANGUAGE ARTS 1Q W Su 3 Prereq teaching experience and c/i. Analysis and instruction in teaching of language arts in the elementary school. Not a course in the teaching of reading.

312 (178) SUPERVISION AND TEACHING OF READING 1Q W Su 3 Prereq teaching experience and c/i. Characteristics of good reading programs and their development in accordance with present day understandings of children and youth.

314 (175) SUPERVISION AND TEACHING OF SOCIAL STUDIES IN THE ELEMENTARY SCHOOL 1Q Su 3 Prereq 12 credits in Education. Methods in the teaching of social studies in the elementary school. Applications, organization, class scheduling, and extra-curricular activities.

316 (177) SUPERVISION AND TEACHING OF ARITHMETIC 1Q Su 3 Prereq teaching experience and c/i. Relevant social and philosophical foundations of modern education, and their application to teaching in the kindergarten and primary grades as a unified program.

330 (171) EARLY CHILDHOOD EDUCATION 1Q S Su 3 Prereq 12 credits in Elementary Education or teaching experience, and c/i. Principles of teaching in the kindergarten and primary grades, application of statistical techniques to educational data; analysis of educational outcomes in elementary and secondary teaching. With consent of Director.

325 (122) PROBLEMS IN CONSERVATION EDUCATION 1Q Su Prereq c/i. May be taken for 3 credits if taken concurrently with Educ 202 or 6 credits if preceded by Educ 202 and Gen 200. Principles of teaching and evaluation of materials for the teaching of conservation.

330 (170) ELEMENTARY CURRICULUM 1Q Su 3 Prereq Gen 200 and 12 credits in Elementary Education. Principles of elementary school curriculum, teaching methods, and research. May not be counted toward the elementary school arithmetic program.

331 (179) SUPERVISION AND TEACHING OF SCIENCE IN THE ELEMENTARY SCHOOL 1Q S Su 3 Prereq Gen 202 or c/i. Curriculum planning, development and use of instructional materials; teaching procedures.

324 (118) TEACHING OF CONSERVATION 1Q S Su 3 Prereq Gen 300 and 12 credits in Elementary Education. Principles and techniques of teaching in the conservation and natural sciences programs and materials. Integral part of summer Conservation Education Workshop.

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### COMPARATIVE EDUCATION
1. **Philosophical Points of View in Education:** concepts of the individual, society, the educative process, and the role of education.
2. **Religion,** the economic system, the family, the estate, and other social institutions.

### Educational Administration
1. **Prerequisites:** teaching experience. Administrative relationships at federal, state, and local levels; responsibilities of county and district school superintendents.
2. **Elementary School Administration:** 1Q W Su 3. Prereq teaching experience. Problems in administering the elementary school. Role and competencies of the elementary principal.

### Secondary School Administration
1. **Prerequisites:** teaching experience. Role of the principal and areas of competency.
2. **Supervision:** 1Q S 4, Su 3. Prereq teaching experience. Roles of and responsibilities of assigned leaders for improving instruction and promoting in-service growth of personnel.

### School Finance
1. **Prerequisites:** teaching experience. Sources of school revenues; related costs, inequalities, legal limitations, and proper expenditures; relationships of foundation programs and district reorganization.

### Planning the School Building Program
1. **Prerequisites:** teaching experience. Procedures in determining building needs, site selection, planning the building, financing, and supervision of construction.

### Personnel Administration
1. **Prerequisites:** teaching experience. Problems of certified and non-certified personnel (not specified). Selection, in-service training, assignment, supervision, and welfare.

### College Teaching
1. **Prerequisites:** teaching experience. 3Q Su 3. Prereq 20 credits of graduate work. The type of teaching applicable to the college level.

### Independent Study
1. **Prerequisites:** teaching experience. A Q/V R-10. Consent of advisor and instructor. Selected topics under the guidance of a staff member.

### Seminar
1. **Prerequisites:** teaching experience. A Q/V R-10. Group analysis of problems in specific areas of education.

### Methods of Educational Research
1. **Prerequisites:** teaching experience. Research problems and research organization, techniques, tabulation of materials, statistical concepts necessary for interpretation of research data.

### Educational Statistics
1. **Prerequisites:** teaching experience. A Q/V R-10. Prereq 72 credits. Methods of Teaching Secondary Art.

### Business Administration

### DRAMA (Minor Only)

### English

### Economics and Sociology

### Art

### Course Requirement in Teaching Major and Minor Fields

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<th>Field</th>
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<tr>
<td>Philosophy</td>
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<tr>
<td>Religion</td>
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<tr>
<td>Economics</td>
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<td>Sociology</td>
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<tr>
<td>History</td>
<td>3</td>
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<td>Art</td>
<td>3</td>
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<tr>
<td>Music</td>
<td>2</td>
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<td>English</td>
<td>2</td>
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<tr>
<td>Business Administration</td>
<td>2</td>
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<tr>
<td>Drama (Minor Only)</td>
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<td>Economics and Sociology (Minor Only)</td>
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<tr>
<td>ENGLISH</td>
<td>3-5</td>
</tr>
</tbody>
</table>

### University Guidebook
Students who wish to qualify for the Secondary State Teaching Certificate must, according to the regulations of the State Department of Public Instruction, complete a minimum of 45 credits in a major teaching field and a minimum of 20 credits in a minor teaching field. In case the patterns of teaching majors and minors are changed by the State Department of Public Instruction subsequent to the issuance of this guidebook, the University reserves the right to modify accordingly the requirements listed below. Major teaching requirements are not necessarily the same as major departmental requirements for graduation. The student might qualify for the state certificate in a subject field by earning 45 credits, but still not meet requirements for graduation as a major in the University department. Students who graduate with a major in a subject field taught in Montana high schools will ordinarily qualify for the certificate, provided other requirements are met. Students should keep in mind that a course may not be counted in more than one major or minor.
FOREIGN LANGUAGES

Language 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, German 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)</td>
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</tbody>
</table>

Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>F. L. 101-102-103</td>
<td>Elementary</td>
<td>15</td>
</tr>
<tr>
<td>F. L. 201-202-203</td>
<td>Intermediate</td>
<td>15</td>
</tr>
<tr>
<td>F. L. 301-302-303</td>
<td>Survey of Literature</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives:

- Any course numbered 300 or above 13

Classical Languages (Latin)

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>(45 credits)</td>
<td>(30 credits)</td>
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</tbody>
</table>

Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>F. L. 101-102-103</td>
<td>Elementary</td>
<td>15</td>
</tr>
<tr>
<td>F. L. 215-216-217</td>
<td>Latin I</td>
<td>4</td>
</tr>
<tr>
<td>F. L. 217-218-219</td>
<td>Latin II</td>
<td>4</td>
</tr>
<tr>
<td>F. L. 219-220-221</td>
<td>Latin III</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives:

- Any course numbered 300 or above 13

HEALTH AND PHYSICAL EDUCATION FOR MEN

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>(48 credits)</td>
<td>(33 credits)</td>
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</table>

Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>H &amp; P E 101</td>
<td>First Aid</td>
<td>2</td>
</tr>
<tr>
<td>H &amp; P E 211-212-213</td>
<td>Coaching—Football, Basketball, Track</td>
<td>6</td>
</tr>
<tr>
<td>H &amp; P E 214-215</td>
<td>Officiating</td>
<td>4</td>
</tr>
<tr>
<td>H &amp; P E 216-217</td>
<td>Dance</td>
<td>5</td>
</tr>
<tr>
<td>H &amp; P E 218-219</td>
<td>Physical Education</td>
<td>4</td>
</tr>
<tr>
<td>H &amp; P E 301-302-303</td>
<td>Survey of Literature</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives:

- Other courses in the department 5


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.

HEALTH AND PHYSICAL EDUCATION FOR WOMEN

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>(48 credits)</td>
<td>(33 credits)</td>
</tr>
</tbody>
</table>

Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>H &amp; P E 101</td>
<td>Intro. to Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>H &amp; P E 201</td>
<td>First Aid</td>
<td>2</td>
</tr>
<tr>
<td>H &amp; P E 231-232</td>
<td>Officiating</td>
<td>4</td>
</tr>
<tr>
<td>H &amp; P E 201</td>
<td>Teaching of Team Sports for Women</td>
<td>4</td>
</tr>
<tr>
<td>H &amp; P E 231-232-233</td>
<td>Dance M e th ods and Materials</td>
<td>6</td>
</tr>
<tr>
<td>H &amp; P E 301</td>
<td>Methods of Teaching Phys. Ed.</td>
<td>3</td>
</tr>
<tr>
<td>H &amp; P E 302</td>
<td>Physical Health Problems</td>
<td>4</td>
</tr>
<tr>
<td>H &amp; P E 305</td>
<td>Organization and Administration</td>
<td>4</td>
</tr>
<tr>
<td>H &amp; P E 308</td>
<td>Applied Anatomy</td>
<td>4</td>
</tr>
<tr>
<td>H &amp; P E 309-310</td>
<td>Seminar</td>
<td>2</td>
</tr>
<tr>
<td>H &amp; P E 401-402</td>
<td>Testing in Phys. Ed.</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives:

- Other courses in the department 2


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.

HISTORY AND POLITICAL SCIENCE

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>(50 credits)</td>
<td>(35 credits)</td>
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Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hist 101</td>
<td>Dev. of West Civ.</td>
<td>12</td>
</tr>
<tr>
<td>Hist 200</td>
<td>U. S. History</td>
<td>12</td>
</tr>
<tr>
<td>Pol. S. 101-102</td>
<td>American Government</td>
<td>8</td>
</tr>
<tr>
<td>Pol. S. 201-202</td>
<td>International Relations</td>
<td>8</td>
</tr>
</tbody>
</table>

Electives:

- Must include 9 credits of upper division courses.

HOME ECONOMICS

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>(50-54 credits)</td>
<td>(35 credits)</td>
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Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>H Ec 102</td>
<td>Intro to Personal and Family Living</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 104</td>
<td>Intro to Home Management</td>
<td>2</td>
</tr>
<tr>
<td>H Ec 144</td>
<td>Intro to Foods</td>
<td>2</td>
</tr>
<tr>
<td>H Ec 155</td>
<td>Textile Selection</td>
<td>2</td>
</tr>
<tr>
<td>H Ec 190</td>
<td>Clothing Construction</td>
<td>2</td>
</tr>
<tr>
<td>H Ec 218</td>
<td>Household Equipment</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 242</td>
<td>Meal Management</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 246</td>
<td>Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>H Ec 236</td>
<td>Clothing for the Family</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 292</td>
<td>Home Planning</td>
<td>2</td>
</tr>
<tr>
<td>H Ec 301-302</td>
<td>Furniture Design</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 303</td>
<td>Household Furnishings</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 306</td>
<td>Problems of the Consumer</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 311-312</td>
<td>Home Living</td>
<td>2</td>
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JOURNALISM (Minor Only)

<table>
<thead>
<tr>
<th>Teaching Minor</th>
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<td>(31 credits)</td>
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Required Courses:

<table>
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<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Journ 106</td>
<td>Introduction to Journalism</td>
<td>3</td>
</tr>
<tr>
<td>Journ 127</td>
<td>Elementary Photography</td>
<td>3</td>
</tr>
<tr>
<td>Journ 140</td>
<td>Introduction to Radio and Television</td>
<td>3</td>
</tr>
<tr>
<td>Journ 196</td>
<td>Current Affairs</td>
<td>3</td>
</tr>
<tr>
<td>Journ 290</td>
<td>History and Principles of Journalism</td>
<td>3</td>
</tr>
<tr>
<td>Journ 316</td>
<td>School Publications</td>
<td>3</td>
</tr>
<tr>
<td>Journ 381</td>
<td>Principles of Advertising</td>
<td>3</td>
</tr>
<tr>
<td>Journ 382</td>
<td>Advertising Layout and Copy</td>
<td>3</td>
</tr>
<tr>
<td>Journ 390</td>
<td>News Ed.</td>
<td>3</td>
</tr>
<tr>
<td>Journ 455</td>
<td>Editorial Writing</td>
<td>3</td>
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LIBRARY SERVICE (Minor Only)

<table>
<thead>
<tr>
<th>Teaching Minor</th>
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<tbody>
<tr>
<td>(36 credits)</td>
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Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Edu 345-346-347</td>
<td>Org. &amp; Adm. of the School Library</td>
<td>12-16</td>
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</table>

Electives:

- Must include 9 credits of upper division courses.

MATHEMATICS

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
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</thead>
<tbody>
<tr>
<td>(45 credits)</td>
<td>(35 credits)</td>
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Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 151</td>
<td>Freshman Math I</td>
<td>5</td>
</tr>
<tr>
<td>Math 152</td>
<td>Freshman Math II</td>
<td>5</td>
</tr>
<tr>
<td>Math 153</td>
<td>Freshman Math III</td>
<td>5</td>
</tr>
<tr>
<td>Math 251-252</td>
<td>Sophomore Math I</td>
<td>5</td>
</tr>
<tr>
<td>Math 255</td>
<td>Sophomore Math II</td>
<td>5</td>
</tr>
</tbody>
</table>

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

- Math 301—Algebra for Teachers 5

- Math 304—Geometry for Teachers 5

Evaluations: 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 101 and 102 may be waived.

MUSIC

Teaching Major *Teaching Minor

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>(60 credits)</td>
<td>(30 credits)</td>
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Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music 111, 112</td>
<td>Theory I</td>
<td>9</td>
</tr>
<tr>
<td>Music 341, 342, 343</td>
<td>Theory II</td>
<td>12</td>
</tr>
<tr>
<td>Music 135, 136, 137</td>
<td>Intro to Music Lit.</td>
<td>6</td>
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</table>

Electives:

- 20 credits

Applied Music—Major Field

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
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</thead>
<tbody>
<tr>
<td>(10 credits)</td>
<td>(5 credits)</td>
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Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music 201-202</td>
<td>Composition</td>
<td>6</td>
</tr>
<tr>
<td>Music 203-204</td>
<td>Conducting</td>
<td>6</td>
</tr>
</tbody>
</table>

*Teaching Major *Teaching Minor

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>(60 credits)</td>
<td>(30 credits)</td>
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Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music 341, 342, 343</td>
<td>School Music</td>
<td>6</td>
</tr>
</tbody>
</table>

Electives:

- Any 2 credits

Applied Music—Major Field

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>(10 credits)</td>
<td>(5 credits)</td>
</tr>
</tbody>
</table>

Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music 201-202</td>
<td>Composition</td>
<td>6</td>
</tr>
<tr>
<td>Music 203-204</td>
<td>Conducting</td>
<td>6</td>
</tr>
<tr>
<td>Music 341-342, 343</td>
<td>School Music</td>
<td>6</td>
</tr>
</tbody>
</table>
ENGLISH—35

Electives:
Music 114, 115, 116—Piano in class .... 3
Music 117, 118, 119—Voice in class .... 3
Music 125, 126, 127—Strings in class .... 3
Music 129—3 Quarters—Winds in class .... 3
*All majors and minors must demonstrate piano ability equivalent of 3 quarters of piano study (private or in class).

SCIENCE
A student planning to qualify for a secondary certificate based on either a teaching major or minor in science must, before the completion of his sophomore year, secure approval of his course offerings in science by the science-education advisor in the School of Education.

Science minors may be taken only by students with a teaching major in another science or in mathematics.

BILOGICAL 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 Summer Flora .... 3-4
Bot 225 or 421—Plant Phys. or Morph. of Seed Plants .... 3
Gen 300—Conservation of Natural and Human Resources .... 3
Zool 104—Elementary Zoology .... 5
Zool 105—Elementary Zoology .... 5
Zool 106—Field Zoology .... 5
Zool 301—Comp Vertebrate Anatomy .... 5
Zool 202—Human Physiology .... 5

Students who wish to teach the biological majors must have taken 12 credits of chemistry.

PHYSICAL SCIENCE

Teaching Major Teaching Minor
(50 credits) (35 credits)

Required Courses:

Chem 101-102-103—General Chemistry .... 15
Chem 101-123—General Chemistry .... 15
Geol 101—Introduction to Geology .... 5
Phys 411-112-113—General Physics .... 15
or 231—232—233—General Physics .... 15
Elective courses from chemistry, geology, physics .... 15

SOCIAL SCIENCES (Major Only)

Teaching Major
(64-65 credits)

Required Courses:

Econ. 201—202—203—Principles of Economics .... 9
Hist. 101—102—103—Development of Western Civilization .... 12
Hist. 201—202—203—U. S. History .... 12
Soc. 101—102—103—Introductory Sociology .... 12
Electives: Limited to one upper division course approved by the advisor; must include one upper division course in Sociology .... 16

SPEECH (Minor Only)

(30 credits)

Required Courses:

Speech 111—Principles of Speech .... 5
Speech 118—Voice and Diction .... 5
Speech 214—Discussion Techniques .... 5
Speech 241—Radio-Television Speech .... 5
Speech 245—Beginning Oral Interpretation .... 5
Speech 267—Debate .... 2
Speech 321—Teaching of Speech .... 3
Speech 330—Introduction to Speech Pathology .... 3
Electives in Speech .... 5

ENGLISH courses prepare the student in the fields of literature, creative writing, composition, and teaching. Through separate schedules, he is allowed to emphasize that part of the general requirements which he feels to be most important to his future career.

Literature is stressed for those who wish to do creative work, teach at the college level, teach in foreign countries, work in magazine or book publishing, do library work, or wish to sense and study the great currents of thought throughout the centuries.

Creative writing and composition are emphasized for those who wish simply to express themselves well, and for those who become interested in the writing of poetry, drama and fiction, or who choose the abilities with other forms of writing such as advertising, public relations, film and television writing.

The teaching sequence prepares students for teaching in the high schools, emphasizing composition, linguistics, and literature that they will find most rewarding in the training of high school students.

A fifth year of English leading to the M.A. degree is explained under Graduate Studies.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN ENGLISH

In addition to the general requirements listed earlier in the guidebook, the student seeking the degree of Bachelor of Arts with a major in English must complete a minimum of 90 but not more than 100 credits in the department. The required courses 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 writing, and one for students planning to teach in the secondary schools. By the beginning of his junior year, the student should have decided definitely which of the schedules he is to follow.

Special comprehensive examinations must 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 3.00 may become a candidate for honors.

Seniors in Schedules A and C should present for graduation a paper, critical or scholarly, prepared in English 498-499. Students in Schedule B may substitute for this a body of creative writing.

All students majoring or minoring in English, whether their degrees are taken in the department of English or the School of Education, will be required to take the basic core curriculum in English studies. Schedules A, B, and C (see below) presume such a core curriculum and build from that.

I. All prospective English majors are expected to take English 101—102—103. In addition, they are expected to take, in their freshman year, the introduction to Humanities (General 151—152—153), which will be counted toward the English major.

II. All students are expected to take, in addition, English 201; English 342 or 343; and two quarters in one sequence and one in another from English 212-213, and 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

English 335 (Chaucer); 3 credits from 491-492-493; 496-499. The remaining credits required for the completion of the minimum 90 may be selected from courses in English, American, or General Literature numbered above 200. The maximum of courses up to 90 may include 300 and 491-492-493.

SCHEDULE B: CREATIVE WRITING

Students whose major interest is in writing fiction and poetry should supplement the core courses with the following required minimum.

SCHEDULE C: TEACHING

Students planning to teach English in high school should supplement the core courses with the following required minimum.
Electives: 10 credits in the related fields below. Other electives may be chosen from courses in the Department of English, from courses in General Literature numbered above 200 or from the Related Fields. Among electives must be one course in American Literature, and one English literature.

Related Fields: Drama 321 (strongly recommended), 101, 121, 131, 243, 251; Journalism 127, 270, 310, 369; Speech 111, 118, 214, 261, 331.

IV. The foreign language requirement listed earlier in the guidebook must be satisfied. Art 201-202-203; Music 153-156-157; Psychology 246; Philosophy 201-202, 260 and 261, plus at least two quarters of study in sociology and history (especially 241-242-243) are strongly recommended.

COMPOSITION, LANGUAGE AND LITERATURE

For Undergraduates

For explanation see Index under "Symbols"

001 (A) PREPARATORY COMPOSITION 1Q A W 0. For freshmen who fail to exhibit an acceptable college performance in the placement examination.

NOTE: Either 104-105 (10 credits) or 101-102-103 (9 credits) is required of all students. Majors in the department complete the 161-162-163 sequence. A student must complete the sequence he begins, i.e., he may not begin with English 104 and change to 102 etc. (See departmental or school curricula.)

101-102-103 (12abc) FRESHMAN COMPOSITION 3Q A W S Su 3. Students receiving a placement grade of "F" in 102 may substitute 201 for 103. Gathering and organization of materials and development of ideas. Structure, form, and variations of the sentence and paragraph.

104-105 (11ab) FRESHMAN COMPOSITION 2Q A W S Su 5. See Note above. Students who receive a grade of "A" in 104 may substitute 201 for 103. Gathering and organization of materials and development of ideas. Structure, form, and variations of the sentence and paragraph.

NOTE: A special section will be reserved for foreign students. Prereq c/l.

106 (13) CREATIVE COMPOSITION 1Q W S 5 Prereq 104 and c/l. The study and writing of verse and short fiction. (Credit in this course fulfills the requirement in Eng 105, but also permits, with c/l, sophomore entrance into Eng 301.)


211-212-213 (58abc) INTRODUCTION TO MAJOR BRITISH WRITERS 3Q A W S Su 3. Enter any quarter. Prereq 102-105 or c/l. Expository writing: (206) Techniques of poetry.

231-232-233 (59abc) INTRODUCTION TO MAJOR AMERICAN WRITERS 3Q A W S Su 3. Enter any quarter. A student with 6 credits of British literature excluding Humanities cannot take this course. (211) Shakespeare through Milton; (212) Dryden through Blake; (215) Wordsworth through Yeats.

301-302-303 (103abc) CREATIVE WRITING 3Q A W S 2. Enter any quarter. Prereq 104-105 or c/l. Fiction with emphasis on the short story. Longer fiction requires a working plan, sample chapters, and c/l.

304 (161) LETTER AND REPORT WRITING 1Q A W S 4. Compositions, two of which are written and analyzed, with emphasis upon tone, content, and form; organizing and writing factual reports.

306 (102) THE WRITING OF DRAMA 1Q A W S Su 2 R-6 Prereq 104-105, 202; 4 cr from Drama 121, 131, 225. Techniques and practice in writing the one-act play and the full-length play. Experimental performances of plays.

311 (150) LITERATURE FOR THE HIGH SCHOOL TEACHER 1Q A Su 3. The literature usually taught in grades 7 through 12 with intensive study of a few selections.

For Undergraduates and Graduates

305 (164) TECHNIQUES OF THE MODERN NOVEL 1Q A 2. The intentions and methods of such innovators as Conrad and Faulkner. Author content variable. Primarily for advanced students in the creative writing schedule, but also to aid the reading awareness of advanced students in the literary and teaching schedules.


341-342-343 (157abc) SHAKESPEARE AND CONTEMPORARIES 3Q A W S Su 3. Enter any quarter. Prereq 9 credits of literature. (341) Tudor Drama: early liturgical drama, medieval mystery and morality plays, Elizabethan and Jacobean plays with emphasis upon historical development and stylistic characteristics. (342) Intensive study of three of Shakespeare's plays. (343) Extensive reading of Shakespeare's plays with attention to dramatic conventions, Renais­

344-345 (172ab) THEORIES OF DRAMA 2Q A W S Su 2 e/y. Enter either quarter. Prereq 1 quarter of 301-302-303. The critical literature from Aristotle to contemporary critics and the reading of representative plays from Aeschylus to the modern dramatists. (344) Tragedy; (345) Comedy.


NOTE: 3 from the above British Literature sequence will be offered each year.

401-402-403 (169abc) ADVANCED CREATIVE WRITING 3Q A W S Su 3. Enter any quarter. Prereq 201-202-203 or c/l. Fiction, with emphasis on the novel, although work in the short story may be continued with c/l. (Graduate students may substitute 1 q of Drama 541.)

411 (192) MAJOR WRITERS 1Q A W S Su 3. Prereq 12 credits in literature. One major writer, American or British, will be given special attention each quarter. Milton will be given one quarter e/y.

423-424-425 (192abc) POETRY 3Q A W S Su 3. Enter any quarter. Prereq 9 cr of literature. A chronological survey, with emphasis on close reading of representative works by major British and American Authors.

481 (105) METHODS OF TEACHING ENGLISH 1Q S only 4. Objectives, materials and organization of the curriculum from grades 7 through 12; observation of expert teachers; some practice in teaching English language in the classroom. Prereq 301-302-303 or c/l. Exc­


498-499 (199ab) SEMINAR: PROBLEMS IN ENGLISH LINGUISTICS 2Q A W Su 2 e/y. Subject to change. (498) Modern linguistic point of view. (499) Old English (S). Phonological and grammatical structure of Old English. (Graduate students may substitute 1 q of English 541.)

500-501-502 (A) PREPARATORY COMPOSITION IQ A W 0. For foreign students.

506 WORKSHOP 1Q Su only V R-10 Prereq teaching experience and c/l.

597 SEMINAR: PROBLEMS IN ENGLISH LINGUISTICS 1Q S Su 3. Prereq Gen 360 and c/l. Subjects vary: linguistic problems in teaching reading and writing English, a foreign language, and in phonemics, morphemics, and stylistics.

600 (200) SEMINAR: PROBLEMS IN RESEARCH a/q V R-6. Guidance in graduate subjects and research.

600 (200) THESIS a/q V R-15.
FOREIGN LANGUAGES—37

FOREIGN LANGUAGES provide instruction and practice in speaking, reading, and writing the tongues of other peoples for commercial, and governmental, or cultural purposes. Intercommunication among the nations of the world depends upon knowledge of modern languages, and such understanding is particularly necessary as the 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, which are useful for studies of the literature and thought of ancient times. These classical languages, as well as modern French, German, Italian, Russian, and Spanish, are offered at the University.

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

HIGH SCHOOL PREPARATION. Language taken in high school may be recognized by the University both in meeting foreign language requirements and in fulfilling the requirements for a major in languages. Placement examinations are required of all entering students who continue languages in which high school entrance credit is presented. Students with one high school unit in a modern language will normally enter course 101; those with two units, course 213; those with three units, courses numbered 300 or over.

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. The total number of credits for a major in a foreign language varies with the student's high school preparation. Specific 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 = .
2. At least 19 credits from courses numbered 300 or over.
3. Four quarters, or =, of another language.
4. Two quarters in history of Europe, chosen from the following:
   History 207 or 208, 210, 211, 215-216, 314, 318 and 328.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

101 (11a) ELEMENTARY FRENCH IQ A W Su 5.
102 (11b) ELEMENTARY FRENCH IQ W Su 5 Prereq 101 or = .
103 (11c) ELEMENTARY FRENCH IQ A Su 5 Prereq 102 or = .
213 (13) INTERMEDIATE FRENCH IQ A W Su 4 Prereq 103 or = .
215 (15) ADVANCED FRENCH IQ W Su 4 Prereq 213 or = .
217 (17) FRENCH GRAMMAR REVIEW AND COMPOSITION IQ A S 3 Prereq 215 or = .

FOR UNDERGRADUATES AND GRADUATES

300 (101) FRENCH CONVERSATION IQ a/q 1 R-3 Prereq 217.
301-302-303 (103 abc) SURVEY OF FRENCH LITERATURE IQ A W S 3 Prereq 217.
305 ADVANCED FRENCH PHONETICS IQ S Su 2 Prereq 217 or = .
311 (105) MEDIEVAL FRENCH LITERATURE IQ A 3 o/y Prereq 217.
321 (107) FRENCH RENAISSANCE IQ W 3 e/y Prereq 217.
331 (109) 17TH CENTURY FRENCH LITERATURE IQ S 3 e/y Prereq 217.
341 (111) 18TH CENTURY FRENCH LITERATURE IQ A 3 e/y Prereq 217.
351 (113) 19TH CENTURY FRENCH LITERATURE IQ W 3 o/y Prereq 217.
361 (115) CONTEMPORARY FRENCH LITERATURE IQ S 3 o/y Prereq 217.
491 (123) SEMINAR IQ a/q V 2-3 R-15 Prereq 217. Works of outstanding writers.

FOR GRADUATES

699 (299) THESIS a/q V R-15.

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 = .
2. At least 19 credits from courses numbered 300 or over.
3. Four quarters, or =, of another language.
4. Two quarters in history of Europe, chosen from the following:
   History 207 or 208, 210, 211, 215-216, 314, 321 and 322.

FOR UNDERGRADUATES

101 (11a) ELEMENTARY GERMAN IQ A W Su 5.
102 (11b) ELEMENTARY GERMAN IQ W Su 5 Prereq 101 or = .
103 (11c) ELEMENTARY GERMAN IQ A S Su 5 Prereq 102 or = .
213 (13) INTERMEDIATE GERMAN IQ A W Su 4 Prereq 103 or = .
215 (15) ADVANCED GERMAN IQ W S Su 4 Prereq 213 or = .
217 (17) GERMAN GRAMMAR REVIEW AND COMPOSITION IQ A S 3 Prereq 215 or = .

FOR UNDERGRADUATES AND GRADUATES

300 (101) GERMAN CONVERSATION IQ a/q 1 R-3 Prereq 217.
301-302-303 (103abc) SURVEY OF GERMAN LITERATURE IQ A W S 3 Prereq 217.
341 (105) 18TH CENTURY GERMAN LITERATURE IQ A 3 o/y Prereq 217.
351 (107) 19TH CENTURY GERMAN LITERATURE IQ A 3 e/y Prereq 217.

FOR GRADUATES

689 (299) THESIS a/q V R-15.

GREEK

No major is given in Greek.

101 (11a) ELEMENTARY GREEK IQ W Su 5.
102 (11b) ELEMENTARY GREEK IQ S Prereq 101.
103 (11c) ELEMENTARY GREEK IQ A S 3 Prereq 102.
213 (13) INTERMEDIATE GREEK IQ W 3 Prereq 103.
215 (15) ADVANCED GREEK IQ S 3 Prereq 213.

ITALIAN

No major is given in Italian.

101 (11a) ELEMENTARY ITALIAN IQ A 5.
102 (11b) ELEMENTARY ITALIAN IQ W 5 Prereq 101 or = .
103 (11c) ELEMENTARY ITALIAN IQ S 5 Prereq 102.
213 (13) INTERMEDIATE ITALIAN IQ A 4 Prereq 103.
215 (15) ADVANCED ITALIAN IQ W 4 Prereq 213.
217 ITALIAN REVIEW GRAMMAR AND COMPOSITION IQ S 3 Prereq 213 or =.
FORESTRY

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 =.
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 1Q A Su 5.
102 (11b) ELEMENTARY LATIN 1Q W 5 Prereq 101 or =.
103 (11c) ELEMENTARY LATIN 1Q S 5 Prereq 102 or =.
213 (13) INTERMEDIATE LATIN 1Q A Su 4 Prereq 103 or =.
215 (15) ADVANCED LATIN 1Q W 4 Prereq 213 or =.
217 (17) LATIN READINGS 1Q a/q V 2-5 Prereq 215 or =.

Works of outstanding Latin writers.

FOR UNDERGRADUATES AND GRADUATES

491 (125) SEMINAR 1Q a/q V 2-3 R-30 Prereq 217. Works of outstanding writers.

FOR GRADUATES

699 (299) THESIS a/q V R-15.

ROMANCE PHILOLOGY

375 INTRODUCTION TO ROMANCE PHILOLOGY 1Q S 3 o/y Prereq Foreign Language 217. The development of the Romance languages from Latin to their present-day forms.

RUSSIAN

No major is given in Russian.

101 (11a) ELEMENTARY RUSSIAN 1Q A 5.
102 (11b) ELEMENTARY RUSSIAN 1Q W 5 Prereq 101 or =.
103 (11c) ELEMENTARY RUSSIAN 1Q S 5 Prereq 102 or =.
213 (13) INTERMEDIATE RUSSIAN 1Q A 4 Prereq 103 or =.
215 (15) ADVANCED RUSSIAN 1Q W 4 Prereq 213 or =.
217 RUSSIAN REVIEW GRAMMAR AND COMPOSITION 1Q S 3 Prereq 215 or =.

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 =.
2. At least 19 credits from courses numbered 300 or over.
3. Four quarters, or =, of another language.
4. History 285-286-287 or two quarters of this course and History 328.

FOR UNDERGRADUATES

101 (11a) ELEMENTARY SPANISH 1Q A W Su 5.
102 (11b) ELEMENTARY SPANISH 1Q W Su 5 Prereq 101 or =.
103 (11c) ELEMENTARY SPANISH 1Q A Su 5 Prereq 102 or =.
213 (13) INTERMEDIATE SPANISH 1Q A W 4 Prereq 103 or =.
215 (15) ADVANCED SPANISH 1Q W Su 4 Prereq 213 or =.
217 (17) SPANISH GRAMMAR REVIEW AND COMPOSITION 1Q A 3 S Su 3 Prereq 215 or =.

FOR UNDERGRADUATES AND GRADUATES

300-301 SPANISH CONVERSATION 1Q a/q 1 R-3 Prereq 217.
301-302-303 (103abc) SURVEY OF SPANISH LITERATURE 3Q A W S 2 Prereq 217.
307 ADVANCED SPANISH COMPOSITION 1Q S 3 e/y Prereq 217 or =.
331 (105) CERVANTES 1Q A 3 e/y Prereq 217.
333 (107) SPANISH DRAMA OF THE GOLDEN AGE 1Q W S 3 e/y Prereq 217.
335 (109) PICARESQUE NOVEL 1Q S 3 e/y Prereq 217.

FOREST ENGINEERING

The degree of Bachelor of Science is offered in Forest Engineering. Laboratory and field work are distinguishing characteristics of forest training, affording opportunities for putting into practice the theoretical knowledge emphasized in the classroom. A summer camp is not required. In lieu of this, however, all students who select Forest Management and Forest Engineering as their field of specialization will spend their sophomore spring quarter in camp on the Lubrecht Forest and their senior spring quarter on a field trip in the western states and in camp near Thompson Lakes. Those selecting Range and Wildlife Management will spend the spring quarter of their sophomore year in camp on the Lubrecht Forest, and their senior spring quarter on extended field trips through the western states.

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

The School of Forestry is accredited by the Society of American Foresters. The courses and curricula described below prepare the student for United States Civil Service positions and professional positions with individual states, some of which offer civil service examinations.

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 126 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 and maintain a grade point average of 2 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.

MASTER OF FORESTRY. Candidates must offer 45 credits in graduate courses including a professional paper.

A minimum of 25 graduate credits in Forestry is required. The remainder of the work may be in other fields acceptable to the Dean of the School of Forestry and to the Dean of the Graduate School.

A professional paper must be prepared under the direction of the major professor. The subject matter of the paper must be approved by the Dean of the School of Forestry and by the Dean of the Graduate School.

A bound copy of the professional paper must be submitted to the Dean of the Graduate School.

Examinations must be taken during the final month of the quarter in which the degree is to be conferred.

FIELD COURSE EXPENSE DEPOSITS. The following field course expense deposits will be charged for advanced courses in the School of Forestry:

- 250, $5.00; 251, $10.00; 252, $15.00; 253, $25.00; 254, $50.00; 255, $75.00; 256, $100.00; 257, $150.00; 258, $200.00; 259, $250.00; 260, $300.00; 261, $350.00; 262, $400.00; 263, $450.00; 264, $500.00; 265, $550.00; 266, $600.00; 267, $650.00; 268, $700.00; 269, $750.00.

With few exceptions, the first year is the same for all students enrolled for this degree. Students are expected to select a specific course of study before they begin the winter quarter of their second year.

CURRICULA LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN FORESTRY

FOREST MANAGEMENT

(All group requirements are not included)

With few exceptions, the first year and the autumn quarter of the second year are the same for all students enrolled for this degree. Students are expected to select a specific course of study before they begin the winter quarter of their second year.

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<td>First Year</td>
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<td>Bot 111—Forest Botany</td>
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<td>Bot 121—Spring Flora</td>
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<td>Chem 101—General Chemistry</td>
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<td>Eng 101—Physical Chemistry</td>
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<td>Math 101—Freshman Mathematics</td>
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<td>Sp 111—Principles of Speech</td>
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<td>H&amp;PE 101—Physical Education</td>
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<td>ROTC 101—Military or Air Science</td>
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Second Year

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<tr>
<td>Autumn: For 210, 252, 260; Physics 111, H&amp;PE 201; ROTC 201. Winter: For 250, 251; Bot 252; H&amp;PE 202; ROTC 202; Electives. Spring: For 290, 291, 253; ROTC 203; Bot 225; Econ 201.</td>
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<td>Third Year</td>
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<td>Autumn: For 250, 291; Bot 252; H&amp;PE 202; ROTC 202. Spring: For 250, 291, 253, 291; Bot 203; ROTC 203.</td>
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Fourth Year

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Fourth Year

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<td>Autumn: For 195; Chem 101; Eng 104; Math 151; H&amp;PE 101; ROTC 101. Winter: For 250; Bot 252; H&amp;PE 201; Phys 101; Physics 111; H&amp;PE 201; ROTC 101. Spring: For 250, 250, 253, 251; Bot 250; H&amp;PE 203; ROTC 203.</td>
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Second Year

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<td>Autumn: For 441; Econ 202; Eng 304; Geol 101; H&amp;PE 203. Winter: For 330, 353, Speech 111; Electives. Spring: Math 153; Physics 113; Psych 110; Electives.</td>
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FOREST RECREATION

Second Year

Autumn: For 210, 232, 280; Zoo 101; H&EPE 201; ROTC 201.
Winter: Econ 201; For 250, 253, 290; Psych 110; H&EPE 202; ROTC 202.
Spring: Bot 225, 355; Zoo 201; H&EPE 203; ROTC 203.

Third Year

Autumn: For 310, 360, 380; Geol 101; Electives. Winter: For 330, 350, 370, 380; Geol 102; Electives. Spring: For 360, 380; Geol 130; Jour 234; Zoo Weil 302; Zoo 360; ROTC 303; Electives.

Fourth Year

Autumn: Anthro 361; For 423, 482; Zoo 380; Electives. Winter: For 370, 474; Pol Sci 362; Electives. Spring: For 312, 351, 462, 480; Zoo 380; Electives.

RANGE CONSERVATION

Second Year

Autumn: Bot 201; For 210, 280; Phys 111; H&EPE 201; ROTC 201.
Winter: Bot 225; Econ 202; For 250; Psych 110; H&EPE 202; ROTC 202.
Spring: Bot 235, 365; For 253; H&EPE 203; ROTC 203.

Third Year

Autumn: For 360, 482; Geol 101; Jour 334. Winter: Bot 366; For 360, 570; Electives. Spring: For 360, 361, 411; Electives.

Fourth Year


SOIL AND WATER CONSERVATION

Second Year

Autumn: Econ 201; For 210, 232, 280; Phys 111; H&EPE 201; ROTC 201.
Winter: Bot 225; Econ 202; For 250; Psych 110; H&EPE 202; ROTC 202.
Spring: Bot 235; Econ 203; For 250; H&EPE 203; ROTC 203.

Third Year

Autumn: For 360, 280; Geol 101; Electives. Winter: Bot 366; Econ 203; For 353, 376; Electives. Spring: Bot 365; For 361, 411; Jour 334; Electives.

WATERSHED MANAGEMENT

Second Year

Autumn: For 250, 270, 290; Physics 111; H&EPE 201; ROTC 201.
Winter: Bot 225; For 250, 291; Math 152; H&EPE 202; ROTC 201.
Spring: Bot 235; Econ 203; For 250, 300, 333; ROTC 203.

Third Year

Autumn: For 360, 310, 360; Geol 112. Winter: For 201, 361, 332, 456, 456; Phys 112. Spring: For 311, 464; Phys 112; Electives.

Fourth Year

Autumn: For 430, 441, 482; Geol 200; Electives. Winter: For 401, 421, 434; Geol 202. Spring: For 456, 481; Geol 203.

WILDLIFE CONSERVATION

Second Year

Autumn: For 210, 232, 280; Zoo 101; H&EPE 201; ROTC 201.
Winter: Econ 201; For 250, 253, 290; Psych 110; H&EPE 202; ROTC 202.
Spring: Bot 225, 355; Zoo 201; H&EPE 203; ROTC 203.

Third Year

Autumn: For 360, 390; Zoo 309; Electives. Winter: Bot 395; For 352, 370; Pol Sci 362; Electives. Spring: Econ 202; For 385; Zoo 360; Electives.

Fourth Year

Autumn: For 460; Electives. Winter: For 470, 472, 480; Electives. Spring: For 471, 481, 496; Electives.

FOR UNDERGRADUATES

For explanation see Index under "Symbols" 50 (10) SLIDE RULE 1Q A/2 0 (3-0) Prereq Math 100 and 113 or concurrent registration. Use of the Ditzgen, Multilog, Multilog, Ditzgen in the solution of mathematics problems commonly encountered in the field of Forestry.

190-191-192 11ab) SURVEY OF FORESTRY 3Q W S 1 (1-0). Enter any quarter. General survey of the field and subject matter of forestry and introduction to the profession: functions and characteristics of forests, their benefits, use, distribution, importance, and conservation.

200 (22) ELEMENTARY FOREST MENSURATION 1Q S 4 (2-3) Prereq sophomore standing in the School of Forestry. The fundamentals and field problems in tree and timber stand measure-
353 (137) TIMBER MECHANICS 1Q W 3 (0-8) Prereq Physics 111. Graphical and analytic statics applied to simple structures; simple beam and truss design: use of timbers and other forest products. Mid-semester and final examinations.

384 APPLIED AERIAL PHOTO INTERPRETATION 1Q S 3 (0-6) Prereq 260 and c/i. Analysis and interpretation of aeriel photographs and related data. Required for aeronautical engineering majors. Credit not allowed for this course and For 265. Course work includes laboratory and field exercises to train in the use of aeronautical photographs for forest and natural resource surveys.

390 (126) GENERAL RANGE MANAGEMENT 1Q A 5 (4-3) Prereq c/i. An introduction to the field of range management, class of stock, grazing season, grazing capacity, control and distribution of livestock on range. Range improvements; forest and range interrelationships.

391 (121) RANGE FORAGE PLANTS 1Q S 4 (0-8) Prereq 390, Bot 260 and c/i. Economic range of forage plants; forage value to different kinds of range animals; management problems in their use.

390 (138) GENERAL WILDLIFE MANAGEMENT 1Q W 4 (4-0) Prereq c/i. The management of wildlife and other forest resources.

398 (137) WILDLIFE REPRODUCTION AND THEIR CONSERVATION 1Q A W 3 (3-0) Prereq 210 and Bot 260. The interrelationships of wildlife conservation problems and programs. The need for conservation to meet our increasing resource needs and manage their development and use to meet the needs of our expanding economy. Conservation and classification of forest animals and plants involved in their application. (not open for doctoral credit)

395 INTRODUCTION TO FOREST RECREATION 1Q W 4 (2-4) Prereq c/i. A survey of the recreational use of forests and other wild lands. Class and field trip essays and reports.

397 RECREATION UTILITIES 1Q W 2 (1-4) Prereq c/i. Theory and design of water and sanitary utilities for recreational areas. Laboratory and field.

398 RECREATIONAL STRUCTURES 1Q W 2 (1-3) Prereq c/i. Elementary design, fabrication, and use of recreational structures. Required for non-engineering majors. Credit not allowed for this course and For 399. Course work includes laboratory and field exercises to train in the use of recreational structures.

400-401 (143ab) FOREST MANAGEMENT 2Q W 5 (3-0), S 10 (2-0 months field period) Prereq 190, 265, and 271 (271 may be taken concurrently). Applied Forest Management, 7 credits. Prereq 300-301, 311 and 420 (420 may be taken concurrently). (400) Organization and management of forest properties; determination of timber cut and regulation of the growing stock. (401) Emphasis on field work necessary in applying forest management, timber cruising, determination of growth, and timber marking.

402 (145) REGIONAL SILVICULTURE 1Q S 2 (0-Field) Prereq 310 and 311. Application of silvicultural methods to the commercial forest types, species, and regions of the United States.

401 (162) FOREST SOIL CLASSIFICATION AND MAPPING 1Q S 4 (3-4) Prereq 210 and Geol 101. Concluding course in the commercial forest types, species, and regions of the United States. Mapping of forest soils, land use classes, and forest site classes.


410 (130) VALUATION 1Q A 4 (3-4) Prereq 310 and 311. Theory and process of estimating value of forest properties and enterprises.

411 (148) FOREST ECONOMICS 1Q W 5 (5-0) Prereq Econ 201 and 240. Economic problems and principles involved in the use of the forest resource and in the distribution of forest products.

420 (150) LAND USE POLICY 1Q A 4 (4-0) Prereq c/i. The development of forest and public land policies, especially in the United States. Policy objectives, program design, and implementation.

425 (196) FOREST ADMINISTRATION 1Q S 2 (2-0) Prereq c/i. Theory of operations and organizing and dealing with personnel in executing private and public forest policies.

430 (125) MECHANICALLY DERIVED WOOD PRODUCTS 1Q A 3 (3-0) Prereq junior standing in the School of Forestry. History, state of the art, and developments in residue utilization. Relationships between utilization and timber production. Major uses of hardwood forms in manufacturing processes and products. Minor forest products.

440 (129) SAWMILLING AND LUMBERING 1Q A 3 (2-4) Prereq junior standing in the School of Forestry. Principles and methods of using sawmilling and other processing operations. Organization and equipment. Effects of logging and timber operations on the nature and quality of lumber. Lumber grades and uses. By-products and residue utilization. Problems of logging, related to the physical, chemical, and biological properties of soils to forest tree growth.

440 (130) VALUATION 1Q A 4 (3-4) Prereq 310 and 311. Theory and process of estimating value of forest properties and enterprises.

450 (126) FOREST ADMINISTRATION 1Q S 2 (2-0) Prereq c/i. Theory of operations and organizing and dealing with personnel in executing private and public forest policies.

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450 (130) VALUATION 1Q A 4 (3-4) Prereq 310 and 311. Theory and process of estimating value of forest properties and enterprises.

450 (125) MECHANICALLY DERIVED WOOD PRODUCTS 1Q A 3 (3-0) Prereq junior standing in the School of Forestry. History, state of the art, and developments in residue utilization. Relationships between utilization and timber production. Major uses of hardwood forms in manufacturing processes and products. Minor forest products.

450 (129) SAWMILLING AND LUMBERING 1Q A 3 (2-4) Prereq junior standing in the School of Forestry. Principles and methods of using sawmilling and other processing operations. Organization and equipment. Effects of logging and timber operations on the nature and quality of lumber. Lumber grades and uses. By-products and residue utilization. Problems of logging, related to the physical, chemical, and biological properties of soils to forest tree growth.

450 (130) VALUATION 1Q A 4 (3-4) Prereq 310 and 311. Theory and process of estimating value of forest properties and enterprises.

450 (125) MECHANICALLY DERIVED WOOD PRODUCTS 1Q A 3 (3-0) Prereq junior standing in the School of Forestry. History, state of the art, and developments in residue utilization. Relationships between utilization and timber production. Major uses of hardwood forms in manufacturing processes and products. Minor forest products.

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450 (130) VALUATION 1Q A 4 (3-4) Prereq 310 and 311. Theory and process of estimating value of forest properties and enterprises.
FOR GRADUATES

520 (150) PUBLIC ADMINISTRATION. Extension course W V Prereq 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, public administration, and related fields. One month, 20 hr. per week. Staff of university specialists in fields involved.

591-592 (129ab) RESEARCH METHODS. 3Q W S 3. Enter either quarter. Prereq at least one course in statistics or statistical elements of forest measurement and C/L (591) Scientific methods, application of scientific methods to the design of experiments, research techniques, organization, research projects. (592) Analysis and presentation of research results.

600 (200) RESEARCH a q V. Independent research. The type of project will be identified for forestry majors as follows: Management, Silviculture, Soils, Economics, Fire Control, Utilization, Engineering, Range Management, Wildlife Management, Conservation and Protection. General.

699 (209) THESIS a q V R-15.

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 specialization; and as many of these fields are in an attempt to secure an understanding of the processes involved in, the reasons for, and the significance of distributions of physical and human phenomena. Geography therefore, entails the study of such physical elements as terrain, climate, natural vegetation, soils and water as well as the human elements which include population, settlements, cultural levels, economic activities and political groupings.

Geography provides the basis for a better 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 at all levels.

FOR UNDERGRADUATES AND GRADUATES

300 (100) CONSERVATION OF NATURAL AND HUMAN RESOURCES IN MONTANA. 1Q W S 3 Prereq c/1. 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 welfare, and the development of principles underlying improved management of the natural resources. A survey of human use of our cultural resources. The methods of social implementation of desired practices. Primarily a technical training course. Does not satisfy requirements for degrees in Botany or Zoology or the group requirements in science.

360 INTRODUCTION TO LINGUISTICS. 1Q A W S 3. A survey of linguistic science. The nature of language and the techniques of the descriptive linguist.

400 GENERAL SCIENCE SEMINAR. 3. Open to Montana high school science teachers. Fifteen lectures with demonstrations and discussions over autumn and spring quarters.

450 (150a) WILDLIFE SEMINAR. 1Q A 2. Prereq standing junior 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 courses numbered 161, 291, 341-342-343, 450, and 491-492-493 will be allowed toward a major in foreign languages.

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

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

FOR UNDERGRADUATES AND GRADUATES

397-398-399 (177abc) THE DRAMA. (See English.)

344-345 (179ab) THEORIES OF DRAMA. (See English.)

386-387-388 (171abc) BRITISH LITERATURE. (See English.)

392-393-394 (180abc) BRITISH LITERATURE: NINETEENTH CENTURY TO 1870. (See English.)

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

491-492-493 (189abc) LITERARY CRITICISM. (See English.)

CURRICULUM IN GEOGRAPHY

is concerned with the description and analysis of the earth's surface. Geographers describe the location and distribution of physical and human phenomena as well as the associations between these various elements. A crucial part of geography is the achievement of an understanding of the processes involved in, the reasons for, and the significance of distributions of physical and human phenomena. Geography therefore, entails the study of such physical elements as terrain, climate, natural vegetation, soils and water as well as the human elements which include population, settlements, cultural levels, economic activities and political groupings.

Geography provides the basis for a better 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 at all levels.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN GEOGRAPHY. In addition to the general requirements for graduation, students in geography will be required to complete the following special requirements must be completed for the Bachelor of Arts degree with a major in Geography: Advance in Geography including Geography 101, 201, 211, 212, 213, 305, 306, 369, 370, and two of six Geography courses numbered 216, 311, 331, 335, 340, 345, and 371; Economics 132, 139 or 200-203; and Sociology 101 or Anthropology 152.

The following courses with the consent of the adviser may be counted toward a major in Geography: Botany 250 or 255, Business Administration 344, Economics 341 and 380, Geology 316, Mathematics 111, Sociology 304, and Forestry 380.

The foreign language requirement listed earlier in the guidebook must be satisfied; 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.
### FOR UNDERGRADUATES

For explanation see Index under "Symbols"

#### Junior Year

<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>Geog 200</td>
<td>Geography of North America</td>
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<td>Geog 205</td>
<td>Geography of Europe</td>
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<td>Geog 330</td>
<td>Climatology</td>
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<td>Hist 251</td>
<td>United States History</td>
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<tr>
<td>Hist 252</td>
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#### Electives in Geography

- Electives: 14

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<tr>
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<td>Geog 450</td>
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<tr>
<td>Electives in Geography</td>
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</table>

FOR UNDERGRADUATES AND GRADUATES

#### 300 GEOGRAPHY OF NORTH AMERICA 1Q W Su 3 Prereq 101 or . Natural and cultural regions of the continent, with emphasis on economic developments.

#### 301 PHYSIOGRAPHY OF NORTH AMERICA 1Q A 3 Prereq 101, Geology 110, or . The geomorphic regions of the continent, their topography, climate, soils, and vegetation.

#### 303 GENERAL GEOGRAPHY 1Q Su (1959 only) 3. Description and analysis of basic relationships between physical and human elements in geography. Not for geography majors.

#### 305 GEOGRAPHY OF EUROPE 1Q A Su 3 Prereq 101 or . The distribution and analysis of geographic features. Contemporary problems and developments.

#### 310 GEOGRAPHY OF LATIN AMERICA 1Q A 3 o/y Prereq 101 or . The physical environment and economic developments.

#### 312 GEOGRAPHY OF AFRICA 1Q A 3 e/y Prereq 101 or . Regional differentiation and political and economic development of the whole continent.

#### 315 GEOGRAPHY OF THE FAR EAST 1Q S 3 Prereq 101 or . The lands and peoples of modern Asia interpreted as the basis of economic activities with special reference to population problems.

#### 318 GEOGRAPHY OF THE U.S.R. 1Q S 3 Prereq 101 or . The geographic regions which are the base for Soviet agriculture and industry.

#### 320 GEOGRAPHY OF THE PACIFIC NORTHWEST 1Q S 3 Prereq 101 or . The relation of the physical environment to changing human adjustments in the Pacific Northwest.

#### 331-332 POLITICAL GEOGRAPHY 2Q A W S (331) The physical and cultural features of a state in relation to problems of unity and diversity: (332) The nature and scope of geopolitics. A geopolitical analysis of the United States and selected states in Europe and Asia.

#### 335 HUMAN GEOGRAPHY 1Q W 3. Human societies in their environmental setting. A comparative approach to men, space, and resources.

#### 340 LOCATION OF ECONOMIC ACTIVITY. (See Economics).

#### 349 URBAN GEOGRAPHY 1Q W 3 Prereq 101 or . The growth, morphology and functions of towns and cities. Examination of the contemporary urban scene.

#### 350 CLIMATOLOGY 1Q W 5 Prereq 101 or . Elements and controls of weather and climate. Classification and distribution of climatic types.

#### 370 LANDFORM ANALYSIS 1Q S 3 Prereq 101 or . Topographic elements of the earth’s surface with emphasis on processes of topographic change.

#### 371 PHYSICAL GEOGRAPHY OF ARID LANDS 1Q W 3 Prereq 101, Geology 110, or . Landform development in the desert environment.

405 THE HISTORY OF GEOGRAPHY 1Q W 3 Prereq 12 credits in Geography or . Geography from early Greek and Roman times to the close of the nineteenth century.

410 PROBLEMS IN GEOGRAPHY 1Q a/q V 1-2 R-6 Prereq 12 credits in Geography.

450 SEMINAR IN GEOGRAPHY 1Q a/q V R-6 Prereq 16 credits in Geography including 101, or .

FOR GRADUATES

500 MODERN GEOGRAPHIC THOUGHT 1Q S 3. The analysis of geographical concepts, approaches, and techniques developed in the twentieth century.

580 RESEARCH METHODS AND MATERIALS 1Q A 3. Collections and preparation of materials in geographic research, including field techniques, interviewing, library sources, and the cartographic presentation of data.

699 THESIS a/q V R-15.

### GEOLGY

Geology is the study of the earth, the processes by which it is changed and the history of its development. Geology aids in the location and exploitation of minerals and fuels, soils, building material, water, and other natural resources.

The Bachelor of Arts degree, the Master of Arts (or Master of Science), and the Ph.D. degrees are offered (see Graduate School). Instruction involves the use of mineral, rock, and fossil collections, geologic and topographic maps, aerial photographs, optical and chemical methods, X-ray methods and many others. Nearly all courses include field work. Students are trained in mapping methods 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, governmental agencies, such as federal and state geological surveys, and mining companies are the chief employers of geologists.

### CURRICULUM IN GEOLGY

#### Freshman Year

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<tr>
<th>Course Code</th>
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<td>Chem 121-122-123</td>
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<td>Zool 101-102-103</td>
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<td>Geol 300-302-303</td>
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<td>ForL 101-102-103</td>
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#### Senior Year

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For explanation see Index under "Symbols"
GEOLOGY

Analysis of Requirements

1. University requirements, Eng 10 cr, Group II 12 cr; Group III 12 cr. For 23 cr. 8 of 25 cr can be applied toward Group III.

2. Geology course requirements

3. Other requirements (Math 15 cr, Chem 15 cr, Phys 15 cr, Zool 10 cr, Eng 4 cr)

4. Military Science

5. Health and Physical Education

6. Electives

Total 106

HIGH SCHOOL PREPARATION. In addition to the general requirements for University admission, the student needs algebra. It is also recommended that high school preparation include advanced chemical, physics, selected field oils and metallic and non-metallic mineral deposits in Montana and vicinity with some field trips. Not allowed toward a geology degree.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN GEOLOGY. In addition to the general requirements for graduation, each student in the geology major must complete the following requirements:

1. 445 X-ray crystallography and structural determination of single crystals by Weissenberg and other methods.
2. GENERAL GEOLoGY 1Q A 5 (3-4) Prerequisite: Math 152, 153, Phys 111-112-113 or 211-221-222; Eng 304. Three quarters of Lab are required for the foreign language requirement.

The degree of Bachelor of Arts with a major 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 to the satisfaction of the School of Law.

FIELD TRIP EXPENSES. Students enrolled in 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 200 Field Geology.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

101-102 (1ab) INTRODUCTION TO GEOLOGY 2Q A W (101 only) 5 (3-4) (101) Minerals, rocks, and structure of earth's crust; the dynamic processes of erosion, transportation and deposition which shape the earth and its development through geologic time; changes of land and sea levels and their relation to the evolution of life. Not open to geology majors.

110 GENERAL GEOLOGY 1Q A 5 (3-4). Open to non-majors with c/L. Minerals, rocks, and structure of earth's crust; the dynamic processes of erosion, transportation and deposition which shape the earth's landscape. Credit not allowed for this course and Geology 101-102.

120 INTRODUCTION TO AERIAL PHOTOS AND GEOLoGIC MAPS 1Q W 4 (2-4) Prerequisite: 110. Interpretation of aerial photos and geologic maps, including construction of cross-sections; geologic illustration.

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

150 HISTORY OF LIFE ON THE EARTH 1Q W Night School only 3 (3-0) Prerequisite: 110 recommended. General evolutionary advances and history of plants and animals throughout geologic time. Lectures, demonstrations and films. Not allowed toward a major in geology.

200 GENERAL PALEOnoLOGY 1Q A 4 (3-2) Prerequisite: 110 or c/L. General principles of paleontology, evolution, and history of plants and animals.

202-203 (22abc) HISTORICAL GEOLOGY 1Q W S 4 (3-2) Prerequisite: 110, 200. Zool 104-105 recommended. (203) the origin of the earth, Precambrian and Paleozoic history; (202) Mesozoic and Cenozoic history. Synoptic approach. Consideration of environments and stratigraphic distributions of plants and animals. American and European vegetation are reported. Laboratories include map, fossil, library, and field exercises.

210 INTRODUCTION TO VERTEBRATE PALEOnoLOGY 1Q A 4 (3-2) Prerequisite: 110, 200. Principles of vertebrate paleontology, vertebrate evolution; comparative laboratory examination of representative fossil and recent vertebrates. 211-212 (2ab) MINERALOGY 1Q W 4 (2-4) Prerequisite Chem 121 or concurrent registration. Elements of crystallography; classification and determination of common minerals by physical and chemical properties; special emphasis on ore and rock forming minerals.
HEALTH AND PHYSICAL EDUCATION

DEPARTMENTS

HEALTH AND PHYSICAL EDUCATION

HEALTH AND PHYSICAL EDUCATION

This department provides courses to prepare students for careers in the health, physical education, and recreation fields. Courses are available at the undergraduate and graduate levels. The department offers a Bachelor of Arts degree with a major in health and physical education and a Bachelor of Science degree with a major in health and physical education.

COURSES

1. Health Education
   - Nutrition and Fitness
   - Health and Wellness
   - Disease Prevention

2. Physical Education
   - Exercise Physiology
   - Sport Psychology
   - Motor Skills Development

3. Recreation Administration
   - Program Planning
   - Facility Management
   - Leadership Training

4. Exercise Science
   - Biomechanics
   - Sports Biostatistics
   - Exercise Prescription

5. Athletic Training
   - Injury Prevention and Treatment
   - Rehabilitation
   - Performance Enhancement

For graduates, a variety of advanced courses are available, including

- Advanced Physical Education Theory
- Advanced Health Education
- Advanced Recreation Administration

Requirements for both degrees are identical in all other aspects.

SPECIAL REQUIREMENTS FOR UNDERGRADUATE DEGREE IN HEALTH AND PHYSICAL EDUCATION

- Two degrees are offered in this Department: Bachelor of Arts, which requires that the foreign language requirement be satisfied, and Bachelor of Science, which requires no courses in foreign language. Students elect five credits from Sociology 101, 102, 204, 261, 362, and 388. Requirements for both degrees are identical in all other aspects.

- In addition to the general requirements for graduation listed earlier in the guidebook, the following special requirements must be completed: 54 credits (men) or 53 credits (women) in Health and Physical Education in addition to Health and Physical Education 115-116-117 (15abc) Fundamentals of Health and Physical Education; Sociology 201, 204, 361, 362, 363, and 402. Requirements for both degrees are identical in all other aspects.


- Students interested in physical therapy or recreation therapy. Others become field leaders in youth-serving organizations, in playground and recreation centers, in summer camps, in the armed forces, in industrial recreation, and in recreation in hospitals and rehabilitation centers.

- SPECIAL REQUIREMENTS FOR UNDERGRADUATE DEGREE IN HEALTH AND PHYSICAL EDUCATION

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- Students interested in physical therapy or recreation therapy. Others become field leaders in youth-serving organizations, in playground and recreation centers, in summer camps, in the armed forces, in industrial recreation, and in recreation in hospitals and rehabilitation centers.
as taught at Montana State University is a study of man's past activities with the hope that lessons may be learned which will be applicable in solving the problems of the present era. For the student who is in search of a broad 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 and future world situations.

Courses are offered in European, American, Far Eastern, Canadian, and Latin-American History. Many students combine the fields of History and Political Science. The department offers the Master of Arts degree in History involving the completion of an acceptable thesis with a major in History. A minimum of 45 credits in History is required, with 20 credits from courses numbered over 300 and including History 491 or 492 or Political Science 491. Only two of History 491 or 492 or Political Science 491 will count in fulfilling the minimum of 20 upper division credits for the B.A. History major. The student must also take a minimum of 15 credits in American and 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. All credits required for the major must be selected from courses numbered over 300 including either History 491 or 492 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 or political science materials in such a language is required. With the consent of the Chairman of the Department the student may fulfill the Language requirement by completing three quarters in each 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 a combined major in Business Administration and History with a minimum of 60 credits, of which at least 20 credits must be in History and 20 credits in Business Administration. At least 5 credits must be from courses numbered over 300 including either History 491 or 492 or Political Science 491.

To earn a Bachelor of Arts degree with a major in History and Political Science together is a combined major in History and Political Science. A minimum of 15 credits must be taken in History. At least 20 credits must be taken in Political Science. Only one of the following courses: 491 or 492 or Political Science 491 will count in fulfilling the minimum of 20 upper division credits for the B.A. History major, except in the case of departments where the History major is required to fulfill the Language requirement by completing three quarters in each two languages.

FOR UNDERGRADUATES AND GRADUATES

101-102-103 (12ab) THE DEVELOPMENT OF WESTERN CIVILIZATION A W 1 Enter any quarter. (101) Ancient world through the medieval period. Greek and Roman civilization, barbarian invasions, feudalism, the growth of the idea of nation, and the growth of nationalism. (102) The Middle Ages to the 18th century. The growth of nationalism, socialism, imperialism, First and Second World Wars, The Cold War. (103) The development of Europe from the 18th century to the present time.

207-208 (32ab) MEDIEVAL EUROPE A W 3. Enter either quarter. (207) The political, economic, social and religious development of Europe from the third century to the eleventh century. (208) A continuation of medieval society to the fourteenth century. Some attention will be paid to cultural and intellectual developments.

210 (34) RENAISSANCE AND REFORMATION 1 Q 3 S. The political, economic and social development of Europe from 1300 to 1660.

215-216 (36ab) EUROPE IN THE 19TH CENTURY 3 Q 4 W 5. The political problems of the early 19th century, economic and social development of the European states from 1815-1870; (216) Continuation after 1870 of 215.


251-252-253 (21abc) UNITED STATES HISTORY A W S Su 4. Each quarter. (251) United States History 1865-1914. Colonial beginnings and progress; the Revolution, Confederation and Constitution; early political development; the War of 1812, sectionalism; Civil War and Reconstruction; The New West; agricultural and industrial development, the growth and development of the nation; growth of capitalism and constitutional changes; the Progressive Movement; World War I; the Depression and the New Deal; World War II.

258-262-267 (23abc) HISPANIC-AMERICAN HISTORY A W S Su 3. Enter any quarter. (258) The European background, the political and economic development of Spain and Portugal to the foundation of the Latin American colonies. (262) The Spanish and Portuguese colonists; the revolution in the colonial period and the military victory of present day Latin American states. (267) The development of Latin American States in the 19th and 20th centuries.

FOR UNDERGRADUATES

302 (15a) HISTORY OF ANCIENT GREECE 1 Q 4 Prereq 101 or 102. An introductory study of the Ancient Near Eastern civilizations and an introduction to the culture and history of the city-states, the hegemony of the Great, and the Hellenistic Age. Early Empires to the birth of Rome.

303 (15b) HISTORY OF ANCIENT ROME 1 Q 4 Prereq 101 or 102. Early Roman history, the rise of the Republic, the fall of the Roman Empire, the fall of Rome. Age of Absolutism; Period of Enlightenment; French Revolution and Napoleon; Industrial Revolution; Congress of Vienna and 1815. A graduate course in history.

311 (35) THE OLD REGIME IQ W 3 Prereq 102. The political, economic, social development of Europe from 1600 until the outbreak of the French Revolution.

312-322 (121ab) CENTRAL EUROPE 2 Q 5 S Prereq 101. A continuation of the development of the states of Central Europe and the Balkans since early modern times to 1815; (322) The growth and development of the states of Central Europe and the Balkans from 1815 to the present.

325-332-339 (139) HISTORY OF CANADA IQ A 4 S Prereq 102 or 241 or 243. A unified account of the history of Canada from the present to the nineteenth century. Some attention will be paid to cultural, religious and intellectual trends.

328 MODERN FRANCE AND SPAIN 1 Q 4 S Prereq 102 or 241. The political, economic and social development of France and Spain from the beginning of the 19th century to the present time. Some attention will be paid to cultural, religious and intellectual trends.

330-331 (107ab) EUROPEAN DIPLOMACY 2 Q 3 S Pre req 102 or 241 or 242. European politics and diplomacy from the Congress of Vienna to 1914; (330) The political, economic and social development of France and Spain from the beginning of the 19th century to the present time. Some attention will be paid to cultural, religious and intellectual trends.

339 (109) HISTORY OF CANADA 1 Q 4 A 4 Prereq 102. A unified account of the history of Canada from the present to the nineteenth century. Some attention will be paid to cultural, religious and intellectual trends; the growth of the Canadian West.
HOMESTEADING

1907 THE AGE OF JACKSON 1Q W 3 Prereg 252. 253. Continuation of History 370. Explanations, the far side of the transition, development, and significance of the Federalists and Jeffersonians.

356 THE AGE OF JEFFERSON IQ W 3 Prereg 252. 253. The Latin American, French, and Indian Wars; the expansion of the United States; the growth of Empire, and the foreign relations of the United States from the American Revolution to 1900; (371) American foreign relations, 1900 to 1920; (372) Historic Sites IQ S Su V 1-3 R-4. Prereg either 365 or 366. A continuation of History 370.

370-371 (129ab) DIPLOMATIC HISTORY OF THE UNITED STATES 1Q S 4 Prereg 252-253. 254. The origin and growth of the constitution with emphasis on the role of the Supreme Court in United States history.


380-381 (117ab) THE Far EAST 2Q A W Su 4. Enter either quarter. Prereg 5 cr. in the Department. (350) Development of the social, economic and political institutions, principally of China and Japan to the 17th century. (351) Continuation of 380 to the present with some stress on international politics in the Far East.

391 (106abc) PROBLEMS IN HISTORY 1Q a/v Q 2-4 R-9 in Hist 391 and Pol Sci 391. Prereg in Hist 391 and Pol Sci 391. Problem course in Historical and Political Science. Study or research in fields selected according to the needs and objectives of individual students.

395 SPECIAL STUDIES IN HISTORY a/v Q 1-2 R-4. Prereg c/f. Offered by different instructors under various titles.

491 (104) EUROPEAN HISTORICAL THOUGHT 1Q A Su 2 Prereg 25 cr in History and Political Science. The contributions of 19th century European historians to the development of modern historical analysis and interpretation.

492 PROBLEMS IN AMERICAN HISTORIOGRAPHY 1Q 3 S Su 2 Prereg 25 cr in History and Political Science. Study of the contrasts in historical interpretation by selecting problems ranging from colonial to contemporary periods.

FOR GRADUATES


503 SEMINAR IN EUROPEAN HISTORY a/v Q 1-3. Problem course in European History.

506 (203) SEMINAR IN AMERICAN HISTORY a/v Q 1-3. Open to graduates who have 90 cr in the Department and 401. Special problems in American History.

599 (299) THESIS a/v Q R-15.

HOMECOMICS curricula are designed to provide opportunities for broad individual growth, social and cultural competence, and professional occupation. Depending on the particular interests of the student, selection may be made from eleven fields of concentration as is indicated in the copy following.

Opportunities for Home Economics graduates are many and varied. Homemaking and home management, teaching, nutrition, institution management, child care and development, house planning and household requirements, consumer buying, clothing selection, care and construction, food selection and preparation, textiles and textile treatment, and marriage and family relationships, 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, such as magazines and newspapers. Many students avail themselves of the broad opportunities for graduate work to qualify themselves for greater professional responsibilities.

For admission to graduate study in Home Economics a student should have a Bachelor’s degree in Home Economics or in a related field and should present evidence of proficiency in academic work.

Both a Master of Science and a Master of Arts are offered, depending largely upon the undergraduate preparation and the field of specialization in Home Economics.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN HOME ECONOMICS: A minimum of 50 credits in Home Economics selected as follows:

Required for all women: Home Economics 102, 104, 141, 155, 156, 210, 243, 366, 368, 371, and 372.


The following courses are required according to the area of interest selected by the student.

1. GENERAL: Home Economics 250, 252, 302, 303, and 371.

2. TEACHING: Home Economics 257, 302, 303, 311, 321, 324, 381, 382, and 391. A teaching minor acceptable to the School of Education; twenty-four hours in some case to Education 380, 381, 382, and 391. These courses place emphasis on the social sciences and the humanities.


5. NEWS OR MAGAZINE WRITING: English 106 and 201-202-203.

6. RADIO AND TELEVISION: Home Economics 142; Journalism 149, 335, 345, 344, 441-442-443; Speech 241.


10. AMERICAN DIETETIC ASSOCIATION INTERNSHIP: These requirements are variable and the student should consult his advisor.

11. RESEARCH FOR INDUSTRY OR GRADUATE STUDY: Chemistry 121-122-123, 248, 346, 345-346-347; Microbiology 250.

CURRICULA IN HOME ECONOMICS

WOMEN

Freshman Year

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<th>A</th>
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<tr>
<td>17</td>
<td>17</td>
<td>10</td>
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</tbody>
</table>
(1) Majors in Foods and Nutrition, Clothing and Textiles, Institution Management, Food Service Management and Dietetic Internship training should elect Chemistry.

 Sophomore Year

 H E 210—Household Equipment .................................................. 3
 H E 242—Meal Management .......................................................... 3
 Elective .............................................................................................. 3
 Sociology 101 or 204 Courtship and Marriage or Elem Soc—Electives, language, or group req. .................................................. 6
 H&PI 201-202-203 ................................................................. 17 17 17

(1) The foreign language requirement listed earlier in the guidebook must be satisfied for a B.A. degree in Home Economics but is not required for a B.S. in Home Economics.

(2) Majors in Foods and Nutrition, Institution Management, Food Service Management and Dietetic Internship training should elect Bacteriology 200, Chemistry 260, Econ 201 or Business Ad 201.

MEN

Freshman Year

 H E 141—Introduction to Foods .................................................. 4
 H E 155—Textile Selection .......................................................... 3
 Art 125—Color and Design ......................................................... 3
 English 104-105—Freshman Composition ..................................... 3
 Bus Ad 201-202—Elementary Accounting .................................... 3
 Elective, language, or group requirements ..................................... 3
 P E 101-102-103—Physical Education ........................................... 3
 ROTC 101-102-103—Military or Air Science ................................. 3
 or 2 1 1
 17 16-18 16-17

 Sophomore Year

 H E 210—Household Equipment .................................................. 3
 H E 242—Meal Management .......................................................... 3
 Econ 201-202-203—Principles of Economics ................................. 3
 Chem 191-192-193—Gen Chemistry or General 131-132-133—Intro to Biol Sc ................................. 3
 Sociology 204—Courtship and Marriage ....................................... 3
 Electives, language, or group requirements ..................................... 3
 P E 201-202-203—Physical Education ........................................... 3
 or 2 1 1
 17 16-17 17-18

 Junior Year

 H E 303—Household Furnishings .................................................. 3
 Chem 203—Organic Chemistry ..................................................... 3
 Chem 304—Physical Chemistry .................................................... 5
 Exec 200—Elementary bacteriology ................................................ 3
 Journ 360, 362—Advertising ............................................................. 3
 Bus Ad 340—Industrial Organization & Management ........................ 4
 Bus Ad 360—Marketing Principles ................................................... 4
 Zoo 203—Human Physiology .......................................................... 4
 Electives, language or group requirements ..................................... 5
 15 16 15

 Senior Year

 H E 340—Nutrition ......................................................................... 4
 H E 341—Dietitian Cookery ............................................................ 4
 H E 342—Institution Buying .......................................................... 4
 H E 343—Institution Org. and Management ..................................... 3
 H E 431—Principles of Food Pur .................................................................. 5
 H E 432—Food Service in Institutions ........................................... 2
 Bus Ad 411—Personnel Management ............................................. 3
 Soc 311—Applied to planning and making cotton and wool garments ............................................................... 6
 Electives, languages, or group requirements ..................................... 9
 16 15 15

The above curricula in addition to giving a student a B.A. degree in food service management qualifies the student for American Dietetic Association Internship. For a B.A. degree sciences listed above, except those required to satisfy group requirements, may be omitted and languages and electives taken instead.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

102 (17a) PERSONAL AND FAMILY LIVING 1Q A W S 3 (3-0). 104 HOME MANAGEMENT 1Q A W S 2 (2-0) Elementary problems in home living.

105 (11) HOME CRAFTS 3Q a/q 1 (1-0). Selected homemaking skills. Offered by various instructors under different titles.

106 (17c) FOODS 3Q A W S 4 (2-2). The production, selection and preparation of food.

159 (82) TEXTILE SELECTION 1Q W S 3 (2-2). Fabrics for family clothing and home furnishings. Analysis of fibers, yarns, weaves and finishes.


242 (21) MEAL MANAGEMENT 1Q W S 3 (2-4). Prereq 104, 141. Selection and care of dining equipment and service. Principles of menu making and food purchasing.

246 (24) ELEMENTARY NUTRITION 1Q W S 4 (4-0). Fundamental principles of adequate human nutrition. Non majors only.

258 (120) CLOTHING FOR THE FAMILY 1Q W S 3 (2-4). Prereq 157 and Art 125. Construction, repair and fitting of garments for the family. An analysis of problems in purchasing clothing from the consumer's point of view.

264 (586) WEAVING 1Q S 2 (1-5). Prereq Art 125. Weaving on the loom for individual use. May be offered by extension and as an evening class for 1 credit.

314 (19) FOOD CONSERVATION 1Q W 2 (2-2) Prereq 141, 242. Methods used in conserving, processing, and storing family foods.

343 (131) INSTITUTION COOKERY 1Q A 4 Prereq 141, 242. Application of principles of cookery to large quantity food preparation; menu planning for institutions.

FOR UNDERGRADUATES AND GRADUATES

362 (119) HOME PLANNING 1Q W 2 (1-2) Prereq 104, 210 and Art 125. Practical problems in planning a home.

363 (173) HOUSEHOLD FURNISHINGS 1Q S 3 (2-4) Prereq 210. Furniture selection and problems in renovation, repair, and care of materials in the home.

304 (128) HOME MANAGEMENT 1Q A S 2 (2-0) Prereq 102, 104. Open to non-majors. Taken concurrently with 311. Management skills and decision-making in problems of the home. Autumn registration is restricted to those home economics majors who take Education 405 as pre-fall teaching.

311 (128) HOME MANAGEMENT 1Q A S 2 (2-0) Prereq 102, 104. Taken concurrently with 311. Management skills and decision-making in problems of the home. Autumn registration is restricted to those home economics majors who take Education 405 as pre-fall teaching.

321 (163) METHODS OF TEACHING HOME ECONOMICS 1Q W 2 (2-2) Prereq 102, 141, 157, and Educ 405. Principles of fundamental principles of organization, unit planning, and method of presentation of subject matter. (Home Econ majors should take this course as Educ 242.)

342 (138) EXPERIMENTAL FOODS 1Q S 3 (1-6) Prereq 141, 242. Foods from the experimental point of view. Special problems are assigned for individual study.

346 (12) NUTRITION 1Q A 4 (3-2) Prereq 242 and Chem 103. Dietetics given in the light of the chemistry and physiology of digestion.

348 (125) CHILD NUTRITION 1Q W S 3 (3-0) Prereq 246. The science of human nutrition as it applies to children.

352 (18) HISTORY OF CLOTHING AND TEXTILES 1Q S 3 o/y (3-6) Prereq 157. Historic costumes and textiles and their influences on modern dress.

358 (121) TAILORING 1Q S 3 (2-4) Prereq 236. The study and application of garment construction and fitting.

360 (18) CLOTHING DESIGN 1Q A S 3 (3-2) Prereq 157 and Art 125. Art principles applied to designing family clothing. Adaptation of commercial patterns to original designs tested by the construction of simple garments.

369 ADVANCED TEXTILES 1Q S 3 o/y (2-2) Prereq 155, Chem 103. Physical and chemical properties of fabrics in relation to use as clothing and home furnishings.

383 ADVANCED CLOTHING DESIGN 1Q W S 3 o/y (2-4) Prereq 236, Art 231. Original clothing designs to fit the individual.

386-367-368 (124abc) HUMAN DEVELOPMENT 3Q A W S 3 (2-V) Prereq Psych 110. Enter any quarter. (366) The infant and pre-school child, laboratory work in the nursery school. (367) The juvenile and pre-adolescent in home, school and neighborhood. (368) The adolescent and young adult in home, school, and community.

406 (122) NUTRITION IN DISEASE 1Q S 4 (4-0) Prereq 346. The symptoms of diseases, prophylaxis and feeding in disease.

421 (193) ADVANCED PROBLEMS IN TEACHING HOME ECONOMICS 1Q S 1 (3-0). Efficient organization and administration of food service units, employment procedures, personnel schedules, records, food cost, and maintenance.

422 (134) INSTITUTION BUYING 1Q W 3 (3-0) Prereq 210. Selection, purchase and storage of foods and selection and care of equipment for institutions; trips to various institutions.

423 (135) INSTITUTION ORGANIZATION AND MANAGEMENT 1Q S 3 (3-0). Efficient organization and administration of food service units, employment procedures, personnel schedules, records, food cost, and maintenance.
JOURNALISM is a broad study of the various media of communication, with emphasis on the history, privileges, obligations and responsibilities of the media; methods by which events and ideas are transmitted, and their effects on readers and listeners. It includes instruction in the techniques for professional careers in newspaper work, radio and television, magazines and books, advertising and photography, public relations and promotion, free lance writing, and related fields. Approximately one-fourth of the academic work for a bachelor of arts degree in Journalism will be taken in the School of Journalism. The other three-fourths of the total credits required for graduation will provide a background in the liberal arts, with emphasis on history, government, economics, philosophy, literature, foreign languages, psychology, and sociology.

The degree of Master of Arts in Journalism also is offered (see Graduate School). Undergraduates specialize in a field which may be news-editorial, radio-television, community newspapers, advertising, or magazines. They receive training in reporting, copy editing, advertising, and the history and law of journalism. Depending on their future specialty, they may also take courses in photography, typographical design and application, typesetting, and television production. Radio and television, magazines and books, advertising and photography, public relations and promotion, free lance writing, and related fields. Instruction in many courses stresses ethics, legal and social responsibilities, and the opportunities for commercial success and public service.

Graduates obtain positions on newspapers in Montana and in other states, including many metropolitan centers. Some are foreign correspondents. Many are editors and publishers, or hold positions on radio and television stations, with technical magazines, in public relations firms or advertising agencies, and government agencies. Some are distinguished scholars, authors and teachers.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, it is recommended that the high school preparation include study of a foreign language and typing.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN JOURNALISM. In addition to the general requirements the candidate for the degree of Bachelor of Arts in Journalism must complete the recommended core curriculum of 37 hours, plus the requirements of his sequence, plus upper class electives to make a total minimum of 45 hours in Journalism. The core curriculum in Journalism, required of all majors, shall consist of Journalism 100, 270, 290, 301, 302, 303, 360, 361, 371, 380, 381, 491-492-493. A foreign language is required (see FOREIGN LANGUAGE REQUIREMENT in general section of Guidebook).

CURRICULUM IN JOURNALISM

Freshman Year

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<th>Course</th>
<th>Credits</th>
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<tr>
<td>Journ 100—Introduction to Journalism</td>
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<tr>
<td>Eng 101-102-103—Freshman Composition</td>
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<tr>
<td>ROTC 101-102-103—Military Science or Air Sci (Men)</td>
<td>5</td>
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<tr>
<td>H&amp;PE 191-192-193—Health and Physical Education</td>
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<tr>
<td>Additional courses to meet University requirements</td>
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Sophomore Year

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<th>Course</th>
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<tr>
<td>Journ 270—Reporting</td>
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<tr>
<td>Journ 290—History and Principles of Journalism</td>
<td>3</td>
</tr>
<tr>
<td>ROTC 201-202-203—Military Science or Air Sci (Men)</td>
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<tr>
<td>H&amp;PE 201-202—Health and Physical Education</td>
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Junior and Senior Years

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Journ 300—Principles of Advertising</td>
<td>3</td>
</tr>
<tr>
<td>Journ 310—Advertising, Sales, And Marketing</td>
<td>3</td>
</tr>
<tr>
<td>Journ 371—Advanced Reporting</td>
<td>3</td>
</tr>
<tr>
<td>Journ 380—News Editing</td>
<td>3</td>
</tr>
<tr>
<td>Journ 381—Advanced News Editing</td>
<td>3</td>
</tr>
<tr>
<td>Journ 491-492-493—Senior Seminar</td>
<td>6</td>
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<tr>
<td>Journ Electives (including sequence requirements)</td>
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</tr>
<tr>
<td>Additional Electives</td>
<td>57</td>
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<tr>
<td>Total recommended hours in Journalism</td>
<td>45</td>
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<tr>
<td>Total recommended hours in General Education</td>
<td>138</td>
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</tbody>
</table>

JOURNALISM CURRICULUM

NEWS-EDITORIAL SEQUENCE: Additional 9 hours required to be chosen from Journalism 348, 362, 363, 384.

ADVERTISING SEQUENCE: An additional 9 hours required to be chosen from Journalism 340, 345, 346, 349.

MAGAZINE SEQUENCE: An additional 9 hours required to be chosen from Journalism 290, 347, 348, 349.

COMMUNITY JOURNALISM: An additional 9 hours required to be chosen from Journalism 290, 332, 335, 337, 338.

Note: Students wishing to major primarily in radio or television journalism should take the radio-television sequence in Journalism. The College also offers a curriculum leading to a Bachelor of Arts degree with a major in Radio-Television (see Radio-Television).

FOR UNDERGRADUATES

100 INTRODUCTION TO JOURNALISM 1QA W S Su 3

28-36 OPEN TO NON-MAJORS. Theory and practice of editing. Elementary work in printing and in the handling of type.

101 INTRODUCTION TO RADIO AND TELEVISION 1QA W S 3

196 CURRENT AFFAIRS 1QA W S Su 1

200 HISTORY AND PRINCIPLES OF JOURNALISM 1Q S 3

201-202-203—Military Science or Air Sci (Men) _________

Admission to the ROTC, H&PE, and substantial transfer of credits may be made to non-majors.

204 (135) PROMOTION AND PUBLIC RELATIONS 1QA W 3

205 (135) TRADE AND TECHNICAL JOURNALISM 1QA W S 3

Journ 270, 290, 300, 301, 302, 303, 360, 361, 371, 380, 381, 491-492-493. A foreign language is required (see FOREIGN LANGUAGE REQUIREMENT in general section of Guidebook).

206 (135) TRADE AND TECHNICAL JOURNALISM 1QA W S 3

Journ 491-492-493—Senior Seminar

Additional Electives

Total recommended hours in Journalism 45

Total recommended hours in General Education 138

190
received a grade or (2) that he has completed, in an approved college or university, three fourths of the work required for an undergraduate degree with an average, in all work for which he has registered, equal to or above that required to graduate from the institution attended, on condition, nonetheless, that he must have failed for such degree prior to receiving a grade. Non-theory courses are not acceptable under the provisions of subdivisions (2) and (3) with the exception that required courses in military and physical education are accepted, the exceptions being ten per cent of the total credit offered for admission. In addition to these requiring requirements, no applicant will be admitted who has demonstrated a lack of capacity for self expression as evidenced, for example, by failing to attain at least average grades (C) in English composition. In view of the fact that graduates of the Law School are admitted to practice law in Montana without taking examinations for an admission to a school other than Montana State University who has not completed his college work is not likely to have been upheld unless he has a very high scholastic average and is exceptionally qualified to pursue the study of law. An applicant enrolled in an approved combination program or who has failed for an undergraduate degree is not likely 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 for 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.

A number of combination programs have been formulated by the Law School in cooperation with various departments of the University. They include Accounting and Law, Business Administration and Law, Economics and Law, Government and Law, History and Political Science and Law, and Philosophy and Law. Combination programs in other departments as may be provided, will be approved by the Dean. Students enrolled in approved combination programs receive an undergraduate degree in the major concentration of the University, the first two years of law and the LL.B. degree at the end of the third year of law. Prospective candidates for the degree of Bachelor of Arts who are required to take a minimum of thirty semester credits in approved courses completed before application for admission to the Law School will be automatically dropped from the Law School. (2) Weighted Average: A student otherwise eligible to apply for admission to the Law School may be dropped from the Law School under the policies specified herein. An applicant is not likely to be admitted unless he has a very high scholastic average and is exceptionally qualified to pursue the study of law.

All applications for admission to the Law School must be submitted at least two weeks prior to the contemplated time of entrance. In addition to the credentials required by the Registrar, the applicant must submit to the Law School (a) an official report of his scholastic standing, or an official report of his scholastic standing as certified by the instructor of the course.

ADMISSION TO ADVANCED STANDING: Applicants for admission to the Law School with advanced standing must satisfy the requirements for admission to the Law School and show: (1) that the Law School Admission Test has been taken prior to or during the first or second semester of law study and will be automatically dropped from the Law School. (2) Weighted Average: A student otherwise eligible to continue in law study who has completed the requirements for his first two semesters of law study in all law courses for which he has registered and received a grade, will be placed on probation. A student on probation who fails to secure an index of 2.0 in law courses not previously taken for which he has registered and received a grade in a subsequent semester, subsequent to being placed on probation, will be dropped from the Law School. Required courses in which the student is deficiency of one-half of the total credits for which he is registered. A student who fails to obtain an index of 2.0 at the end of his fourth semester of law study in all courses for which he is registered and has received a grade, or fails to maintain such an index thereafter, will be dropped from the Law School. Any student who has completed two semesters of law study but who has failed to register for courses in the third year of their studies who has been placed on probation, will be dropped from the Law School.

REQUIREMENTS FOR GRADUATION: Candidates for the degree of Bachelor of Laws (LL.B.) must: (1) be graduates of an approved college or university; (2) complete a minimum of ninety semester hours of law with an index of 2.0 in all law courses in which the student has registered and received a grade; (3) complete the following required courses for the first year as specified in the Program of Instruction below; all procedure courses (including both civil and criminal Practice, Civil Procedure, Constitutional Law, Legal Ethics, and Legal Writing). A candidate for the degree of Bachelor of Laws who has fulfilled the requirements for the degree if, in the opinion of the majority of the law faculty, he is unqualified in accordance with generally accepted standards for admission to the bar.

A student may not register nor receive credit for more than 16 hours of law in a semester.

FIRST YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Civil Procedure I, II</strong></td>
<td><strong>Civil Procedure I, II</strong></td>
</tr>
<tr>
<td>2</td>
<td>2</td>
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<tr>
<td><strong>Contractions</strong></td>
<td><strong>Creditors’ Rights</strong></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Criminal Law</strong></td>
<td><strong>Federal Taxation I, II</strong></td>
</tr>
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<td>3</td>
<td>2</td>
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<td><strong>Equity</strong></td>
<td><strong>Second Year</strong></td>
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<tr>
<td>3</td>
<td><strong>CIVIL PROCEDURE I &amp; II</strong></td>
</tr>
<tr>
<td>3</td>
<td><strong>Civil Procedure III</strong></td>
</tr>
<tr>
<td>3</td>
<td><strong>Commercial Transactions I, II</strong></td>
</tr>
<tr>
<td>3</td>
<td><strong>Constitutional Law</strong></td>
</tr>
<tr>
<td>3</td>
<td><strong>Evidence</strong></td>
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<td>4</td>
<td><strong>Law Review I, II</strong></td>
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<tr>
<td>3</td>
<td><strong>Legal Writing I, II</strong></td>
</tr>
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<td>3</td>
<td><strong>Trust and Future Interests</strong></td>
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<td>3</td>
<td><strong>Wills</strong></td>
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<tr>
<td>2</td>
<td><strong>Wills</strong></td>
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</tbody>
</table>

THIRD YEAR

| 1 | **Conflicts** |
| 1 | **Court Room and Office Practice I, II** |
| 1 | **Credits’ Rights** |
| 1 | **Civil Procedure I, II** |
| 3 | **FEDERAL TAXATION I, II** |
| 3 | **Law Review II** |
| 2 | **Legal Ethics** |
| 1 | **Legal Writing III** |
| 2 | **Oil and Gas** |
| 1 | **Restitution** |
| 2 | **Secured Transactions** |
| 3 | **Trade Regulations** |
| 2 | **Water Law** |

COURSES

**ADMINISTRATIVE LAW I** 1 Sem S 2, McFarland and Vandebilt, 4th Edition.


**CIVIL PROCEDURE I & II** 2 Sem A S 1, Continues. Atkins & Chadburn, Cases and Materials on Civil Procedure; Mason, Montana Cases on Courts and Types of Jurisdiction (lithographed); Mason, Statutes and Cases on Jurisdiction of Federal Courts (lithographed).


**EVIDENCE** 1 Sem A 4. McCormick’s Cases on Evidence.


**CONTRACTS & LAW REVIEW I & II** 2 Sem A S 1, Continues. Casebook to be announced.


**LAW REVIEW I & II** 2 Sem S 1, Second year. S 1, Third year. No Text.
LEGAL ETHICS 1 Sem S 1. Mimeographed materials of Instructor.

LEGAL WRITING I, II & III 2 Sem A S 1 Second Year. A 1 Third year. No text.

OIL AND GAS 1 Sem A 4. Sullivan, Handbook of Oil and Gas Law; Cases and Materials on Oil and Gas (mimeographed).


RESTITUTION 1 Sem A 2. Durfee and Dawson, Cases and Remedies, Volume II.


TRADE REGULATIONS 1 Sem S 2. Handler, Cases on Trade and Regulation.


WATER LAW 1 Sem S 2. Mimeographed materials of instructor.

WILLS 1 Sem A 2. Turcurrente, Cases and Text on Wills and Administration.

LIBERAL ARTS (See inside front cover)

LIBRARY SERVICE courses are designed to prepare students for professional work in small and medium sized public and college libraries. Students preparing for school library work should work toward a major in the School of Education with a minor in library service. Students preparing for public or college library work should register for the four-year program leading to the degree of Bachelor of Arts with a major in library service.

This program is so planned that the student is given basic preparation for admission to a graduate library school if he wishes to prepare for work in larger libraries. The course outlined here is primarily designed to meet the needs of Montana for trained librarians, but will also prepare the student for library work in similar libraries in the Northwest and other areas.

The College of Arts and Sciences and the School of Education offer the curriculum in Library Service.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN LIBRARY SERVICE. 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 with a major in Library Service:

MATHMATICS is concerned not only with formulas and processes which give "answers" to problems but with the fundamental ideas which are the basis for modern developments in most other sciences. It is a science in its own right and is still growing rapidly.

Gradsuates 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 skill is required to put a problem into a form in which the machine can handle it.

The Bachelor of Arts, Master of Arts and Master of Science degrees are offered (see Graduate 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 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 requirements must be completed for the Bachelor of Arts Degree with a major in Mathematics: Math 125, 151, 152, 201, 202. A foreign language; French or German preferred.

1. For those planning to go into graduate work or industry: a total of 50 credits in mathematics including at least 20 credits in upper division courses, 15 credits in mathematics and 15 credits in physics; at least 6 credits from mathematics 309, 310, 311, 312.

2. For those planning to go into teaching: a total of 45 credits in mathematics including Math 301 or 304; at least 15 of these credits must be in courses numbered over 300, and completion of requirements for certification as a high school teacher.

MASTER OF ARTS OR MASTER OF SCIENCE IN TEACHING. See copy under Graduate School.

FOR UNDERGRADUATES

001 (A) PRE-FRESHMAN ALGEBRA 1Q A 0. For students who do not qualify for Mathematics 100.

100 (10) INTERMEDIATE ALGEBRA 1Q A W S 2 Prereq satisfactory performance in an examination in intermediate algebra.

112 MATHEMATICS FOR BUSINESS STUDENTS 1Q A W S 5 Prereq 100 or satisfactory performance in an examination in intermediate algebra.

125 (25) STATISTICS 1Q A W S Su 5 Prereq 100 or 112 or satisfactory performance in an examination in intermediate algebra.
130 (130) THEORY OF ARITHMETIC 1Q A Su 5 Prereq satisfactory performance in a placement examination in elementary algebra and a knowledge of the methodical meaning and background of arithmetic.

151 FRESHMAN MATHEMATICS I 1Q A W S 5 Prereq 100 or satisfactory performance in an examination in intermediate algebra. Linear, quadratic, and circular functions; solution of triangle systems of equations, existence theorems, Fuch's theorem, method of coordinates systems; conic sections.

152 FRESHMAN MATHEMATICS II 1Q W S 5 Prereq 151. Determinants; identities; complex numbers; transformations of coordinate systems; conic sections.

153 FRESHMAN MATHEMATICS III 1Q A S 5 Prereq 152. Permutations, combinations, probabilities, progressions, differentiation of algebraic functions; theory of equations.

231 SOPHOMORE MATHEMATICS I 1Q A W S 5 Prereq 153. Applications of the derivative; transcendental functions and their derivatives; integration; algebraic and transcendental functions; integration techniques; further applications of the derivative and the integral; mathematical induction.

232 SOPHOMORE MATHEMATICS II 1Q W 5 Prereq 251. Geometry 5 W 5. The subject matter of high school geometry compared with that of other geometries.

234 (132) GEOMETRY FOR TEACHERS II 1Q W 5. Prereq 251. Solid analytic geometry; partial derivatives; multiple integrals; infinite series.

FOR UNDERGRADUATES AND GRADUATES

301 (131) ALGEBRA FOR TEACHERS I 1Q W S 5 Alternate years Prereq 222 or 251 or concurrent registration. In the processes of elementary algebra and arithmetic considered from a mature point of view, for the teacher of high school algebra.

302–303 (102ab) STATISTICAL METHODS 2Q A W 2 Prereq 116, or 125, or 152, and c/l. Primarily intended for those who find need for statistical techniques in fields of application; (302) Descriptive statistics, principles of estimation, confidence intervals; (303) tests of significance; (306) analysis of variance, regression, correlation, design of experiments, simple analysis of variance.

304 (132) GEOMETRY FOR TEACHERS II 1Q W 5. Prereq 251. The subject matter of high school geometry compared with that of other geometries.

313 (101) ORDINARY DIFFERENTIAL EQUATIONS I 1Q S 5 Prereq 222 or 223 (Math 390-391 recommended). Elementary solutions of differential equations; series solutions; Bessel, Legendre equations; introductions to Sturm-Liouville systems; Picard's Method of Successive Approximations.

314 (132) LINEAR GROUPS I 1Q S 1 Prereq 312. Groups with operators, normal series and composition series; geometric construction of fields; applications to metric geometry.

321 SYNTHETIC PROJECTIVE GEOMETRY 1Q A 3 Prereq 251. Projective transformations, projective invariants; conics; geometric construction of fields; applications to metric geometry.

322 ANALYTIC PROJECTIVE GEOMETRY 1Q W 3 Prereq 311. Projective transformations, projective invariants, and conics by means of coordinate systems.

324 ELEMENTARY NUMBER THEORY 1Q S 5 Prereq at least 20 cr in Math with a grade of C+ or better.

341–342-343 (140abc) MATHEMATICAL STATISTICS 3Q A W S 5 Prereq 222 or 224 and c/l. (340) Development of necessary mathematical concepts, probability, random variables and distribution function. (342) Random variables, distribution functions, sampling, testing hypotheses, (343) continuation of 342.

351 (150) SEMINAR 1Q a/q V R-15. Prereq 251. Guidance in special work for advanced students.

360 (108) INTRODUCTION TO FUNCTIONS OF A COMPLEX VARIABLE I 1Q A 3 Prereq 310. Beginning complex variables and basic concepts of topology.

361 (111) INTRODUCTION TO FUNCTIONS OF A COMPLEX VARIABLE II 1Q W 3 Prereq 409.

371 REAL VARIABLES 1Q S 3 Prereq 309-310.


431 (181) ANALYSIS I: TOPOLOGY 1Q A 3 Prereq 310. The theory of plane sets of points, of general sets of points and properties inherent under continuous and topological transformations.

432 (181) ABSTRACT ALGEBRA I 1Q A 3 Prereq 310 and 312. Groups; rings; isomorphisms, homomorphisms; integral domains; fields, ideals.


434 (182) ABSTRACT ALGEBRA II 1Q W 3 Prereq 422. Theory of groups, fields, norm, traces.

435 (183) MEASUREMENT AND INTEGRATION I 1Q S 3 Prereq 423. Set functions, semi-rings, and fields of sets measure; the general theory of integration with respect to a measure function.

436 (182) MATHEMATICAL STATISTICS 1Q S 3. Prereq 424. Groups with operators, normal series and composition series; Galois theory, real fields, fields with valuations.

FOR GRADUATES

Before beginning work on an M.A. a student should have an undergraduate major in mathematics with a B average in upper division courses in mathematics. As preparation for advanced courses, he should have Math 200, 310, 311, 312. These courses are not required for the M.A. or M.S. in teaching.

600 (200) GRADUATE SEMINAR 1q a/q V Prereq 421. This course provides guidance in graduate subjects or research work.

699 (299) THESIS 1Q a/q V R-15.

ASTRONOMY

111 (A-11) DESCRIPTIVE ASTRONOMY 1Q S 5. An introductory course.

MEDICAL TECHNOLOGY is a combined study of chemistry, physics, physiology and microbiology. A medical technologist is one who, by education and training, is capable of performing, under the supervision of a pathologist or other qualified physician, the various biological, chemical, microscopic, bacteriological, and other medical laboratory procedures used in the diagnosis, study and treatment of disease. Four years are required to earn the degree of Bachelor of Science in Medical Technology. The first two years are devoted to the development of a sound foundation in physics, chemistry and biology and in obtaining an understanding of social science and cultural subjects. The last two years are designed to develop proficiency in the fields of microbiology and clinical methods.

To be certified by the Board of Registry, a student, after satisfying the minimum course requirements, must have an internship at least 12 consecutive months in an approved school of Medical Technology endorsed by the American Medical Association. Schools of Medical Technology are located in every state in the Union, the District of Columbia, Hawaii, Puerto Rico and the Canal Zone. After successful completion of the internship, the student receives a diploma from the Board of Registry, certification as a Medical Technologist. Although this certification is desirable, persons receiving the B.S. in Medical Technology are qualified bacteriologists and can obtain positions in many laboratories as technicians. Medical Technologists are in demand in hospital laboratories, in physicians' offices, research institutions, and in federal and state health departments.

Various medical technology schools require only 2 or 3 years of college work and one year of hospital practice. The curriculum in this institution has been so arranged as to allow the student to complete all course requirements during the first two years. It is possible then, but not recommended, to take two years of college work and 12 months of hospital practice to be certified by the Board of Registry as a Medical Technologist. The present trend is to require at least 3 years of college work and 12 months of hospital practice.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, it is recommended that high school preparation include: Algebra, Geometry, Trigonometry, Chemistry, Physics and a foreign language.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN MEDICAL TECHNOLOGY to meet the general requirements listed earlier in the Guidebook, the following courses are required for the Bachelor of Science in Medical Technology: Microbiology 200, 302, 310, 401; Physics 111, 112, 113; Zoology 126, 150, 151, 155; Chemistry 121, 122, 123, 215, 261, 282. A minimum total of 48 credits from Microbiology courses listed above and from the following courses is required: Microbiology 305, 320, 331, 401.
MICROBIOLOGY AND PUBLIC HEALTH.

Microbiology is the study of bacteria, molds, yeasts, rickettsia, protozoa and viruses. The field includes General, Medical, Sanitary and Industrial Microbiology, as well as Food and Water Microbiology, Immunology, and Serology, and certain aspects of Agricultural Microbiology.

A Bachelor of Arts degree is given in Microbiology. When a student is deficient in Microbiology, the adviser will determine how many undergraduate courses this student will have to take in order to give him the fundamental background needed for graduate studies in this department. (For general requirements of all graduate students, see Graduate School.)

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, it is recommended that high school preparation include Algebra, Geometry, Trigonometry, Chemistry, Physics and a foreign language.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN MICROBIOLOGY. In addition to the general requirements for graduation listed earlier in the guidebook, the following courses must be completed for the Bachelor of Arts degree in Microbiology: Microbiology 200, 302, 310, 405, 406, 407; Zoology 101-105 or Botany 121-123; Chemistry 121-122-123; and Physics 111-112-113. The foreign language requirement listed earlier in the guidebook must be satisfied.

A minimum of 45 credits in the major field is required to receive the baccalaureate degree. This requirement may be satisfied by a successful completion of Microbiology courses listed above and any of the following courses: Microbiology 110, 305, 320, 330, 331, 401, 402, 403, 404, 406, 410, 415, 420, and 430; Zoology 302, 305; Botany 225, 325,

329, 378; Chemistry 263, 324, or any other course approved by the adviser and head of the department.

BASIC PROGRAM

Freshman Year

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<tr>
<td>Chem 121-122-123—College Chemistry</td>
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<tr>
<td>Zoology 104-105—Elementary Zoology</td>
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<tr>
<td>Math (courses depend on preparation and placement)</td>
<td>5</td>
<td>5</td>
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<tr>
<td>Electives</td>
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Sophomore Year

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<tr>
<td>Microbiology 200—General Bacteriology</td>
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<tr>
<td>Chem 261-262—Organic Chemistry</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Chem 245—Quantitative Analysis</td>
<td>5</td>
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<tr>
<td>Physics 111-112-115—General Physics</td>
<td>5</td>
<td>5</td>
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<tr>
<td>Electives</td>
<td>5</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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<tr>
<td>Microbiology 302—Medical Microbiology</td>
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<tr>
<td>Microbiology 310—Immunology and Serology</td>
<td>5</td>
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<tr>
<td>Zoology 302—Human Physiology</td>
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SENIOR YEAR

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<tr>
<td>Microbiology 402—Hematology</td>
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<tr>
<td>Microbiology 416—Clinical Diagnosis</td>
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<tr>
<td>Electives</td>
<td>12</td>
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FOR UNDERGRADUATES

For explanation see Index under "Symbols"

190 (19) ELEMENTARY MICROBIOLOGY IQ A S Su 3 (3-0-4) or S 5 (3-4). Fundamentals of general bacteriology, pathogenic bacteria and immunology. Lab consists of bacteriological examination of food, water, soil, milk and experiments with disease-producing bacteria. (Not allowed towards a major in Microbiology.)

105 (29) GENERAL HYGIENE IQ S 3 (3-0). Personal hygiene and its effects on the individual and the community. Nutrition, sanitation and prevention of diseases.

110 (210) PUBLIC HEALTH IQ W 2 (2-0). Sanitation problems as they involve health and disease.

209 (117) GENERAL BACTERIOLOGY IQ A 5 (3-4). Bacterial taxonomy, classification, morphology, physiology; effect of environmental factors on bacteria; microbiology of soil, water, milk and foods; and industrial microbiology.

FOR UNDERGRADUATES AND GRADUATES

302 (110, 121) MEDICAL MICROBIOLOGY IQ A 5 (3-4), Prereq 200. Pathogenic microorganisms including bacteria, fungi, viruses, and rickettsia.

303-304 (160) LAB PHARMACEUTICAL BACTERIOLOGY IQ A 5 (3-4), Prereq 100. Preparation, sterilization and storage of culture media; differential media; function of ingredients, and general nutritional requirements of bacteria.

310 (118) IMMUNOLOGY AND SEROLOGY IQ W 5 (3-4), Prereq 302. General principles of immunity and extensive laboratory work in serology, animal experimental work and clinical diagnosis.

312 (120) BACTERIOLOGY OF WATER AND SEWAGE IQ W On demand 5 (3-4), Prereq 300. Microorganisms found in water and sewage; sewage treatment and disposal, and water purification.

330 (121) FOOD MICROBIOLOGY IQ A On demand 3 (3-0). Microbiology of foods with emphasis on preparation, preservation and spoilage of foods.

331 (122) FOOD MICROBIOLOGY LABORATORY I Q A On demand 3 (3-0). Techniques for the investigation of microorganisms in foods.

360 MICROBIOLOGY FOR TEACHERS IQ Su 5 (3-4). Introduction to Microbiology to high school science teachers. Not open to Microbiology majors.

401 (191) ADVANCED IMMUNOLOGY IQ On demand 3 (3-0). Prereq 310. Advanced theories of immunity and recent immunological techniques.

420 (125) HEMATOLOGY IQ A 4 (2-4). Blood elements and blood chemistry in health and disease as applied to hospital laboratories.

403 (103) MICROBIAL PHYSIOLOGY IQ S 5 (3-4) Prereq c/c. Physiology of bacteria and related microorganisms, the metabolism of microbes, enzymes of bacteria.
MUSIC

The School of Music offers to students who have demonstrated talent in music, the opportunity to continue further study of music either for a profession or an avocation, and to acquire at the same time a broad general education. Complete sequences of courses are given to prepare a student for (A) a career as teacher or supervisor of music in the public schools, or for (B) a career directed toward composition, private teaching, and concert work, or for (C) thorough training in music within the structure of a broad liberal arts curriculum.

The School of Music is a member of the National Association of Schools of Music.

The following degrees in music are offered by the School of Music:

Bachelor of Music
- with a major in Music Education
- with a major in Applied Music
- with a major in Theory or Composition

Bachelor of Arts
- with a major in Music

Master of Music
- with a major in Music Education
- with a major in Applied Music
- with a major in Composition

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 evidence of talent, combination of liberal education, use 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 DEGREES IN MUSIC. In addition to the general requirements for graduation listed earlier in the 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 54 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 or 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 C 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 seeking a B.M. degree are required to participate in Band, Orchestra or a Choral Group each quarter of residence of the regular school year. 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, and percussionists must register for Chorus every quarter. Piano and organ majors must fulfill this requirement by the election of Music 149 or 106-110. 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 4 credits in Piano 100 or completion of Piano in Class 217.

APPLIED MUSIC FEES

Non-Music Majors

One half-hour lesson per week $12.00
Two half-hour lessons per week 24.00
Three half-hour lessons per week 36.00

Music Majors

One half-hour lesson per week $12.00
Two or more lessons per week 20.00

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 within the quarter. Lessons missed by students or lessons falling on a legal holiday will not be made up.

RENTALS, PER QUARTER

(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 music organizations, Montana State University offers three major courses, each leading to the degree of Bachelor of Music with a major in Music Education.

Students desiring 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).

GENERAL SUPERVISOR MAJOR

FRESHMAN YEAR

Music 101, 102, 103 (Applied) 7.00
Music 106-110 (Organization) 3.00
Music 111-112-113 (Theory I) 3.33
Music 114, 115,116 (Piano in Class) 1.00
Music 125, 126, 127 or 129 (Strings or Winds in Class) 1.00
Music 150, 152, 157 (Instruction to Music Literature) 1.00
English 104-105 & Psych. 110 1.00
Health & Physical Educ. 101-102-103 1.11
R.O.T.C. 101-102-103 (Men) 2.22

Sophomore Year

Music 201, 202, 203 (Applied) 1.11
Music 106-110 (Organization) 1.11
Music 201, 202, 203 (Thru Class) 4.44
Music 215, 216, 217 (Piano in Class) 1.00
Music 117, 118,119 (Voice in Class) 1.11
Music 241, 242, 243 (Organ and practice room, one hour daily) 3.00
Electives (Non-Music) 3.33
Health & Physical Educ. 201-202-203 1.11
R.O.T.C. 201-202-203 (Men) 2.22

Junior Year

Music 301, 302, 303 (Applied) 1.11
Music 106-110 (Organization) 1.11
Music 201, 202, 203 (School Music) 3.33
Music 125, 126, 127, or 129 (Strings or Winds in Class) 1.11
Electives 300, 205, 205 4.44
Electives (Non-Music) 6.00

MUSIC 106-110 (Organization)
### MAJOR IN ORCHESTRAL INSTRUMENTS

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<tbody>
<tr>
<td>Music 151, 152, 153 (Applied)</td>
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<tr>
<td>Music 166-110 (Organization)</td>
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<tr>
<td>Music 111-112-113 (Theory I)</td>
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<tr>
<td>Music 130, 131, 132 (Piano in Class)</td>
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<tr>
<td>Music 135, 136, 137 (Introduction to Music Literature)</td>
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<tr>
<td>English 106-110 &amp; Psych 110</td>
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<tr>
<td>Health &amp; Physical Educ</td>
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<tr>
<td>ROTC 101-102-103 (Men)</td>
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### SOPHOMORE YEAR

<table>
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<th>Credit per Quarter</th>
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<tbody>
<tr>
<td>Music 251, 252, 253 (Applied)</td>
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<tr>
<td>Music 106-110</td>
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<tr>
<td>Music 241, 242, 243 (Theory II)</td>
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<tr>
<td>Music 251, 252, 253 (Piano in Class)</td>
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<tr>
<td>Music Electives (non-music)</td>
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<tr>
<td>Health &amp; Physical Educ</td>
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<tr>
<td>ROTC 201-202-203 (Men)</td>
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### JUNIOR YEAR

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<th>Credit per Quarter</th>
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<tbody>
<tr>
<td>Music 351-352-353 (Applied)</td>
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<tr>
<td>Music 401, 402, 403 (Applied)</td>
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<tr>
<td>Music 404 (Senior Recital)</td>
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<tr>
<td>Electives (non-music)</td>
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### MAJOR IN COMPOSITION OR THEORY

<table>
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<th>Credit per Quarter</th>
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<tbody>
<tr>
<td>Music 101, 102, 103</td>
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<tr>
<td>Music 106-110</td>
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<tr>
<td>Music 111-112-113 (Theory I)</td>
</tr>
<tr>
<td>Music 130, 136, 137 (Intro to Music Literature)</td>
</tr>
<tr>
<td>Music 135, 136, 137</td>
</tr>
<tr>
<td>English 106-110 &amp; Psych 110</td>
</tr>
<tr>
<td>Health &amp; Physical Educ</td>
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<tr>
<td>ROTC 101-102-103 (Men)</td>
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### SOPHOMORE YEAR

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<tr>
<th>Credit per Quarter</th>
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<tbody>
<tr>
<td>Music 201, 202, 203</td>
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<tr>
<td>Music 106-110</td>
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<tr>
<td>Music 111-112-113 (Theory I)</td>
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<tr>
<td>Music 130, 136, 137</td>
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<tr>
<td>Music 135, 136, 137</td>
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<tr>
<td>Music Electives (non-music)</td>
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<tr>
<td>Health &amp; Physical Educ</td>
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<tr>
<td>ROTC 201-202-203 (Men)</td>
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### JUNIOR YEAR

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<th>Credit per Quarter</th>
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<tbody>
<tr>
<td>Music 301, 302, 303</td>
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<tr>
<td>Music 106-110</td>
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<tr>
<td>Music 320, 321, 322 (Orchestration)</td>
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<td>Music Electives (non-music)</td>
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### SENIOR YEAR

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<th>Credit per Quarter</th>
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<tr>
<td>Music 401, 402, 403</td>
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<tr>
<td>Music 106-110</td>
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<tr>
<td>Music 434, 435, 436 (History of Music)</td>
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<tr>
<td>Music 379, 380, 381</td>
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<tr>
<td>Music Electives (non-music)</td>
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### ADDITIONAL REQUIREMENTS: Students taking voice or instrument in the Music 161-463 Series, must take Music 190—Piano until a jury examination has been passed.

### Theory Majors are required to complete Music 159, 160, 161 and Music 259, 200, 25.

### Composition Majors: A faculty jury examination of representative work in composition must be passed at close of sophomore year. Seniors will present a recital of original music (or equivalent) for solo voice or instrumental, and vocal and instrumental groups, including at least one composition for large ensemble.

### C. CURRICULUM FOR BACHELOR OF ARTS DEGREE WITH A MAJOR IN MUSIC

Students who are especially interested in obtaining a broad liberal arts education, with thorough musical training may elect to follow a course leading to the Bachelor of Arts degree with a major in music. This course is designed for teacher preparation, but provides a liberal arts background for advanced study in musicology or the humanities. A minimum of 60 credits should be taken in the college of Arts and Sciences. This includes credits in Art and Drama.
MARCHING BAND may be given a placement examination and assigned to the course to which selected from Band, Orchestra, Chorus, (or 140 summer only). Minimum of 3 credits in applied music, a professional paper, at pass an oral examination covering the field of study; 3 credits minimum of 12 credits in composition and 6 credits in applied music, equivalent of such a degree, faculty approval of original scores.

MUSIC 101, 102, 103 (First year)—201, 202, 203 (Second year)—301, 302, 303 (Third year)—401, 402, 403 (Fourth year)

Secondary Applied Major a/q V 1-2 Prereq audition and c/o. Individual instruction in voice, piano, organ, string, wind, and percussion instruments. Students majoring in Applied Music (Curriculum B) may not pass more than one of the equivalent of four years prior study. A senior recital must be given before graduation.

FOR UNDERGRADUATES

011 MUSIC FOUNDATIONALS 1Q A 0. For freshmen who are lacking in theoretical musical training.

106 (10)—UNIVERSITY CHOIR
107 (10)—CHORAL UNION
108 (10)—ORCHESTRA
109 (10)—SYMPHONIC BAND
110 (10) MARCHING BAND

Courses 106 thru 110 are major musical organizations. 3Q A W S Su 1 Prereq c/o. Music majors may have a minimum of 12 credits; non-music majors may take 6 credits.

MUSIC 115-116 (11ab) THEORY I 3Q A W S 3. Prereq pass music placement examination and knowledge of music structure, including the study of scales, keys, intervals, chord sequences, melody writing, beginning modulations, and rhythms. Four-part writing, analysis, dictation, and keyboard application. To acquaint the student with the fundamentals of musicianship, to increase his accuracy and understanding in musical performance, and to train him to think in tone so that he is able to sing, identify, and write the music he hears.


125-126 (22ab) MUSIC EDUCATION IN THE ELEMENTARY SCHOOL 3Q A W S 3. To enable music education majors to gain a practical knowledge of the stringed instruments.

130 (29) WIND AND PERCUSSION INSTRUMENTS IN CLASS 3Q A W S Su 1-4. Enter any quarter. To enable music education majors to gain a practical knowledge of the instruments.
PHARMACY

is the science which treats of medicinal substances. It embraces a knowledge of medicines and the art of compounding and dispensing them and also their identification, selection, combination, analysis, standardization, and mode of action.

Pharmacists are required for the degree of Bachelor of Science in Pharmacy. The degree of Master of Science in Pharmacy is also offered. Since pharmacists are licensed to practice in the states, the undergraduate curriculum is geared to such requirements. During their first two years at the University students study physical and biological sciences and take courses in the social sciences and English. Pharmacy proper involves studies of the various types of pharmaceutical products and dosage forms—their preparation compounding, and dispensing on physicians' prescriptions. Pharmaceutical chemistry is the application of the principles of chemistry to substances used in pharmacy and medicine with emphasis on preparation, identification, properties, and analysis. Pharmacognosy is the study of drugs obtained from plant, animal, and microbiological sources. Pharmacology treats of the effects and mode of action of drugs on living organisms. Pharmaceutical administration is concerned with the important business phases of retail pharmacy such as marketing and management.

Most graduates enter retail pharmacy in rural, neighborhood, or "downtown" stores. Others conduct hospital pharmacies, a particularly attractive field for women. In addition to the formal educational program, the candidate for license as a registered pharmacist must complete one year of "practical experience" or internship in pharmacy under the direction of a registered pharmacist and must pass an examination given by the State Board of Pharmacy. Additional qualifications exist as representatives for pharmaceutical manufacturers, in government service, in manufacturing pharmacy, and in pharmaceutical journalism. Those with advanced degrees are in demand in research positions and in pharmaceutical education.
The School of Pharmacy was established in 1907 at Montana State College and was transferred to the State University campus in 1913.

The School of Pharmacy is a member of the American Association of Colleges of Pharmacy and is accredited by the American Council on Pharmaceutical Education.

A 3-year professional program based on two years of general college work and leading to the degree of Bachelor of Science in Pharmacy is offered. The first and second years of study must be taken at Montana State University. The professional curriculum of the School of Pharmacy requires three years and must be taken in residence at Montana State University, although students transferring from accredited schools of pharmacy may be admitted to an advanced standing determined on the basis of credits presented.

Upper class students may choose approved elective courses designed to prepare them for the practice of pharmacy, sales and management, research and teaching, or for hospital pharmacy. Such elective courses will be determined by the area of specialization chosen by the student, and must be approved by the faculty advisor.

A program of study leading to the Master of Science degree in the areas of pharmacy, pharmaceutical chemistry, pharmacognosy, and pharmacology is also offered.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, the student needs algebra and geometry. It is also recommended that the high school preparation include advanced algebra, trigonometry, chemistry, physics and particularly if the student may pursue advanced studies for graduate study and must complete a program satisfactory to the faculty of the School of Pharmacy.

REQUIREMENTS FOR ADMISSION TO THE PROFESSIONAL CURRICULUM. 1. The general requirements for admission to Montana State University as listed earlier in the guidebook.

2. At least two years as prescribed in the pre-pharmacy curriculum:
   - First Year: Botany 130, Chemistry 121-122-123, English 104-105, Health and Physical Education 201-202-203, Mathematics 100 and 151, RTOC 100-102-103, English 104-105, and Zoology 101. (Students satisfactorily passing the mathematics placement examination will be exempt from Mathematics 100 in which case they will substitute a Group II or Group III elective).


   Applicants presenting two years of satisfactory college work but with certain deficiencies in the above list may be admitted, but such deficiencies must be removed.

   Each applicant for admission to the professional curriculum must have an accumulated grade point index of 2.00 on all college work taken and completed for credit at the time he makes application for admission to the first professional year.

   Students who take the two pre-pharmacy years at other schools, and who then transfer to Montana State University, will take Pharmacy 220 and complete the professional year instead of the elective courses prescribed in this year.

   The autumn quarter is the normal time of admission to the School of Pharmacy.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PHARMACY. A candidate for admission to the senior year in the professional curriculum may not have a deficiency score of more than 10. If he has a greater deficiency, he will not be granted senior standing but will be required to retake such courses, as the faculty may direct, in which he has received grades of "D" or "F" until he has reduced his deficiency to 10 or less. Then he may be admitted to 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 at least 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 State Board of Pharmacy. To be qualified for this examination, the applicant shall be a citizen of the United States, of good moral character, at least twenty-one years of age, and shall have completed an accredited program in pharmacy. However, such an applicant shall not receive a license until he has completed an internship of at least one year, following graduation from an accredited pharmacy program in the state of Montana.

GRADUATE STUDY. Candidates for the degree of Master of Science in Pharmacy must comply with the regulations 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: Chemistry 121-122, English 104-105, 121 or Elective, 220 or Elective, 314, 324-325, 361, and Zoology 340-341.


Third year: Pharmacy 503, 505-506, 516, 517-518-519, 540-541-542, 550, 571; and electives.

FOR UNDERGRADUATES


314 (14) INORGANIC PHARMACEUTICAL CHEMISTRY IQ A 4 (3-4) Prereq Chemistry 125. The inorganic chemicals of medicinal and pharmaceutical importance.

324-325 (24ab) PHARMACOGNOSY IQ W 4 (3-2). S 4 (3-2) Prereq Botany 130 or =. The plant and animal products used in pharmacy and medicine.

361 (21a) OPERATIVE PHARMACY IQ S 3 (2-3) Prereq 220. Fundamental techniques; various classes of pharmaceutical preparations.

414-415-416 (11abc) ORGANIC MEDICINAL PRODUCTS IQ A W 3 (3-0) Prereq 361 and Chemistry 263. Organic substances used medicinally with emphasis on the correlation of chemical structure with biological activity.


414 (11) INTRODUCTION TO PHARMACOLOGY IQ S 3 (3-0) Prereq 220-241. Methods of drug administration and the quantitative evaluation of drug activity.

452 (132) DRUG ANALYSIS IQ A 4 (2-6) Prereq Chemistry 245. Special and instrumental methods used in the analysis of pharmaceutical preparations.

462-463 (21b,21c) OPERATIVE PHARMACY IQ A W 5 (3-4) Prereq 220 and 361. Fundamental techniques and the various classes of pharmaceutical preparations.

466 (102) MEDICINAL PLANTS IQ On demand 2 (0-0) Prereq 220 or c/l. The collection, identification, drying, garbling, milling of crude drugs.

467 (104) IDENTIFICATION OF MEDICINAL PLANTS IQ S 1 (2-2) On demand 3 (0-0) Prereq 466 or c/l. The herbarium study of medicinal plants.

468 (113) DRUG MICROSCOPY IQ On demand 2 (0-4) Prereq junior standing in pharmacy and c/l. Microscopic and microchemical examination of drugs, foods and spices. The detection of adulterants and impurities.

503 (193) BIOLOGICAL MEDICINAL PRODUCTS IQ W 3 (3-0) Prereq Microbiology 264. Biologicals, antibiotics, vitamins, hormones, and other biological and nonbiological products of microbial origin.

505-506 (156a,b) DISPENSING IQ A W 4 (3-6) Prereq 463. The fundamental principles of prescription compounding by means of a detailed study of the common dosage forms and special forms of medication.

518 (196) PHARMACEUTICAL LAW IQ A 3 (3-0) Prereq senior standing in Pharmacy. State and federal laws pertaining to the practice of pharmacy.

517-518-519 (197abc) PHARMACEUTICAL PRACTICE IQ A W S 3 (6-2-2). Prereq 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 practices.

540-541-542 (140abc) PHARMACOLOGY IQ A W S 4 (3-3) Prereq senior standing in pharmacy, and Zoology 341 or =. The pharmacodynamics of drugs and its application to therapeutic use.

570 (155) ANIMAL HEALTH PRODUCTS AND PESTICIDES IQ S 3 (3-0) Prereq 540. Pharmacological use of these chemicals in the control of disease and parasites.

575 (142) TOXICOLOGY IQ S On demand 3 (2-4) Prereq 454. The study of the effects of poisons, the characteristics of the more common poisons, and the recognition and identification of poisons.

577 (177) PHARMACY ADMINISTRATION IQ S 3 (3-0) Prereq senior standing in pharmacy. The management of retail pharmacy with emphasis on the professional problems of the drug store.

FOR UNDERGRADUATES AND GRADUATES

570 (160) COSMETICS IQ On demand 3 (1-6) Prereq 463. The theory and technics of cosmetic formulation.

595 (165) ADVANCED DRUG ANALYSIS IQ On demand 3 (1-6) Prereq 452. The more involved methods of analysis as applied to pharmaceuticals.

592-593 (192ab) HOSPITAL PRACTICE IQ On demand 1-3 (0-2/cr) Prereq 505. Participation in the routine of a hospital pharmacy.

598 (182) PHARMACY SEMINAR IQ A 1 (1-0) R-6 Prereq senior standing in pharmacy.
is man's enquiry, past and present, into pharma

cognosy. Alkaloids, including methods of isolation, degra
dation studies, proof of structure, and chemistry. (607) Gly
ca /q (0-9) Prereq 466 and Bot 334 and 335. Tec

hiques used in isolation and purification of organic med
icinals by advanced techniques.

601-602 ADVANCED PHARMACOCYSTICAL TECHNICS

1Q a/q 3 (0-9) Prereq 466 and Bot 334 and 335. Tec

hiques used in investigation of the occurrence of struc
ture, and synthesis, with emphasis on the pharmaceutical
compounds. (506) Volatile oil, terpenoids and sterols, in
cluding their occurrence, methods of isolation and chem
istry. (607) Gly
ca /q (0-9) Prereq 466 and Bot 334 and 335. Tec

hiques used in isolation and purification of organic med
icinals by advanced techniques.

611 ADVANCED ORGANIC MEDICINAL PRODUCTS LABORA

tORY 1Q a/q 2 (0-6 to 9) R-6. Preparation, isolation and purifi
cation of organic medicinals by advanced techniques.

619 (209) ADVANCED PHARMACOLOGY 1-3Q a/v 3-5

(0-9 to 15) Prereq 542 or -. The more involved actions of drugs
upon cells and organs.

620 (210) ADVANCED PHARMACY 1-3Q a/v 3-5 (0-9 to 15)

Prereq 506 or -. The more complex problems involved in formu
lation and preparation of pharmacinals.

699 (299) THESIS a/q V R-15.

PHILOSOPHY

is man's enquiry, past and present, into the fields of metaphysics, theory of knowledge, ethics, political the
ory, religious belief, logic, science, and aesthetic experience. Career oppor

unities in philosophy are usually limited to teaching in institu
ations of higher learning. Philosophy is also recommended as preparation for graduate work in law, theology, social sciences, criticism, and various liberal arts studies.

The Bachelor of Arts and Master of Arts degrees are offered.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DE
GREE IN PHILOSOPHY. In addition to the general requirements for graduation listed earlier in the guidebook, the following special require
ments must be completed for the Bachelor of Arts degree with a major in Philosophy: a minimum of 50 credits, including Philo
sophy 100, 201, 202, 203, and three or more credits in courses numbered 460 or above. Normally students are expected to complete Philosophy 110, 201, 202, and 203 by the end of their sophomore year. The foreign
language requirement listed earlier in the guidebook must be satis
fied.

PHILOSOPHY-LAW COMBINATION PROGRAM. In addition to the general requirements for graduation listed earlier in the guidebook, a minimum of 45 credits in Philosophy must be earned in three years. The first year of law will complete requirements for the degree of Bachelor of Arts with a major in Philosophy: a minimum of 20 credits, including Philos
ophy 100, 201, 202, 203, and three or more credits in courses numbered 460 or above. Normally students are expected to complete Philosophy 110, 201, 202, and 203 by the end of their sophomore year. The foreign language requirement listed earlier in the guidebook must be satis
fied.

FOR UNDERGRADUATES

100 (55) INTRODUCTION TO PHILOSOPHY 1Q 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.

101-102-103 INTRODUCTION TO PHILOSOPHY 3Q A W S 2

Enter any quarter. (101) Theory of Knowledge. (102) Metaphysics. (103) Moral Philosophy. Credit not allowed for both this course and 100.

110 (50) LOGIC 1Q A S 3. The valid forms of reasoning, the methods of science, and the detection of fallacies.

120 (51) ETHICS 1Q A W 5. The nature of moral values, standards of moral judgment, moral problems in personal life and in social situations.

150 FUNDAMENTALS OF METAPHYSICS AND THEORY OF KNOWLEDGE 1Q A 5. Questions and concepts involved in theories of being and the possibilities of knowing reality.

201 (52a) HISTORY OF ANCIENT PHILOSOPHY 1Q A 5.

202 (52b) HISTORY OF MEDIEVAL AND RENAISSANCE PHILOSOPHY 1Q W 5 Prereq 201, or c/i.

203 (52c) HISTORY OF MODERN PHILOSOPHY 1Q S 5 Prereq 202 or c/i.

210 (53) SYMBOLIC LOGIC 1Q W 5 Theory and practice; translation of arguments into symbolic language, testing validity by the methods of formal or mathematical logic.

FOR UNDERGRADUATES AND GRADUATES

301-302-303 (101abc) GREAT PHILOSOPHERS 3Q A W S 1.

(Given in the summer for 3 cr as 304). Enter any quarter. (301) Greek, Roman, and Jewish Christian thinkers. (302) Late medieval, Renaissance, and some modern thinkers. (303) Recent and con
temporary thinkers. Not open to Philosophy majors for graduate credit.

239 (152) MODERN ETHICS 1Q W 5 Prereq 120. Recent theories on the nature of moral concepts; these will include naturalism, intuitionism, emotivism, and existentialism.

231 (151) SOCIAL ETHICS 1Q S Su 4 or 5. Implications of different social systems with respect to rights, responsibilities, and the formation of personal character.

232 PHILOSOPHY OF LAW 1Q A 3 Prereq 5 credits in Philosophy. Various concepts of law in their relation to individual freedom and to social order; philosophical justification of different forms of authority.

230 (150) PHILOSOPHY IN THE TWENTIETH CENTURY 1Q A 5 Prereq 18 credits in Philosophy preferably 201-205-206.

240 (153) AESTHETICS 1Q S 3. The nature of aesthetic experience, of the standards of art criticism, and of the kinds of knowledge communicated by art. Readings from philosophers, artists, and art critics.

241 PHILOSOPHY IN LITERATURE 1Q A W Su 3 Prereq 10 credits in literature or Philosophy or -. Philosophical evaluation of leading ideas in selected masterpieces of literature, both classical and modern.

250 (157) THEORY OF KNOWLEDGE 1Q S 3 e/y Prereq 150 or c/i. Foundations of belief and reliable knowledge; the claims of rationalism, empiricism, pragmatism, mysticism, authoritarianism, and critical realism.

251 (157) METAPHYSICS 1Q W 3 Prereq 150 or c/i. Theories of reality including study of such fundamental concepts as being, form, substance, causality, universality, and experience.

252 PHILOSOPHY OF LANGUAGE, 1Q S 2 e/y Prereq 5 credits in Philosophy and c/i. Recent investigations into the structure of ordinary and ideal languages as systems of signs and resulting conclusions for Philosophy.

253 (158) CONTEMPORARY PHILOSOPHIES OF SCIENCE 1Q A 3 e/y Prereq 110 or -. History and critical study of some con
temporary theories concerning the nature and limits of science, including logical empiricism and operationism.

254 (28) PHILOSOPHY OF RELIGION 1Q W 3 e/y Prereq 5 credits in Philosophy. Philosophical interpretations of religious experience, belief and practice.

260 PLATO 1Q W 3 e/y Prereq 201; or 10 credits in Philosophy and c/i. Reading and interpretation of selected works.

261 ARISTOTLE 1Q S 3 e/y Prereq 201; or 10 credits in Philosophy and c/i. Reading and interpretation of selected works.

265 DESCARTES, SPINOZA, LEIBNIZ 1Q S 5 Prereq 203; or 10 credits in Philosophy and c/i. The development of Continental Rationalism.

266 LOCKE, BERKELEY, HUME 1Q W 5 Prereq 200; or 10 credits in Philosophy and c/i. The development of British Empiricism.

267 KANT 1Q S 5 e/y Prereq 203; or 10 credits in Philosophy and c/i. Reading and interpretation of selected works.

268 NINETEENTH CENTURY DIALECTICAL PHILOSOPHY, 1Q W 3 e/y Prereq 203; or 10 credits in Philosophy and c/i. Dialectical idealism (Hegel) and dialectical materialism (Marx).

269 PHILOSOPHICAL LIBERALISM, 1Q A 3 e/y Prereq 10 credits in Philosophy. Development of the chief concepts of liberalism, such as liberty, civil rights, and social justice.

270 IDEALISM 1Q S 3 e/y Prereq 10 credits in Philosophy. Recent British and American idealist philosophies.

271 REALISM 1Q W 3 e/y Prereq 10 credits in Philosophy. Twentieth century realism, naturalism, and anti-realism.

273 EXISTENTIALISM 1Q W 5 Prereq 10 credits in Philosophy and c/i. Selected readings from the works, both philosophical and literary, of prominent existentialist thinkers.

270 (191) PROBLEMS IN PHILOSOPHY 1Q a/v V R-9 Pre

req 15 credits in Philosophy and c/i.

420 (194) SEMINAR: THEORY OF VALUES 1Q S 3 Prereq 15 credits in Philosophy and c/i. 

422 SEMINAR: PHILOSOPHICAL PRESUPPOSITIONS OF PO
LITICAL INSTITUTIONS 1Q W 3 e/y Prereq 322 or Political Science 531.
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 take Math 253. Given subject to demand. This course satisfies medical and technical requirements in general physics. (221) Mechanics and wave motion. (222) heat, electricity, and magnetism. (223) Sound, light, and atomic physics. Credit not allowed toward a physics major.


551-552-553 (55a-b-c) QUANTUM MECHANICS 2Q A W S 5 (5-0) Prereq 353 and 473. Quantum mechanics. Credit not allowed for both 551-552-553 and 501-502-503.

555-556 (55a-b) QUANTUM PHYSICS 2Q A W S 5 (5-0) Prereq 551-552. Quantum mechanics.

PHYSICS is the science that has as its objective the formulation and verification of laws or relationships among the different physical quantities. Some of the most important of these quantities are mass, time, length, force, energy, momentum, electric charge, electric field strength, entropy, wave length. These quantities and the relations among them, that we call laws, have been found to serve in and to explain a wide range of phenomena such as occur in the subjects of mechanics, heat, electricity, magnetism, light, atomic and nuclear physics, and in such related subjects as engineering, biophysics, meteorology and geophysics. In addition the subject of philosophy is profoundly influenced both by the methods and developments of physics.

The Bachelor of Arts and Master of Arts degrees are offered.

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

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PHYSICS. In addition to the general requirements for graduation listed earlier in the guidebook, fifty-five credits in physics must be earned for the Bachelor of Arts degree with a major in physics. In preparation for advanced courses, a student should take Physics 221-222-223 in the sophomore year. Required courses offered in other departments: Mathematics 131, 152, 153, 251, 252, 253; Chemistry 111-122-123. The foreign language requirement listed earlier in the guidebook must be satisfied.

FOR UNDERGRADUATES

111-112-113 (11a-b-c) GENERAL PHYSICS 3Q A W S 5 (5-3) Prereq for 111: Math 100. 111 is prereq for 112 and 113, but 112 is not prereq to 113. (111) Mechanics and wave motion; (112) heat, electricity and magnetism. (113) Sound, light, and atomic physics. Credit not allowed toward a physics major.

221-222-223 (22a-b-c) GENERAL PHYSICS 3Q A W S 5 (5-3) Prereq for 221: Math 152. 221 is prereq for 222 and 223, but 223 is not prereq to 222. This course satisfies medical and technical school requirements in general physics. (221) Mechanics and wave motion; (222) heat, electricity, and magnetism. (223) Sound, light, and atomic physics.


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FOR UNDERGRADUATES

111-112-113 (11a-b-c) GENERAL PHYSICS 3Q A W S 5 (5-3) Prereq for 111: Math 100. 111 is prereq for 112 and 113, but 112 is not prereq to 113. (111) Mechanics and wave motion; (112) heat, electricity and magnetism. (113) Sound, light, and atomic physics. Credit not allowed toward a physics major.

221-222-223 (22a-b-c) GENERAL PHYSICS 3Q A W S 5 (5-3) Prereq for 221: Math 152. 221 is prereq for 222 and 223, but 223 is not prereq to 222. This course satisfies medical and technical school requirements in general physics. (221) Mechanics and wave motion; (222) heat, electricity, and magnetism. (223) Sound, light, and atomic physics.


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FOR UNDERGRADUATES

111-112-113 (11a-b-c) GENERAL PHYSICS 3Q A W S 5 (5-3) Prereq for 111: Math 100. 111 is prereq for 112 and 113, but 112 is not prereq to 113. (111) Mechanics and wave motion; (112) heat, electricity and magnetism. (113) Sound, light, and atomic physics. Credit not allowed toward a physics major.

221-222-223 (22a-b-c) GENERAL PHYSICS 3Q A W S 5 (5-3) Prereq for 221: Math 152. 221 is prereq for 222 and 223, but 223 is not prereq to 222. This course satisfies medical and technical school requirements in general physics. (221) Mechanics and wave motion; (222) heat, electricity, and magnetism. (223) Sound, light, and atomic physics.


PHYSICS is the science that has as its objective the formulation and verification of laws or relationships among the different physical quantities. Some of the most important of these quantities are mass, time, length, force, energy, momentum, electric charge, electric field strength, entropy, wave length. These quantities and the relations among them, that we call laws, have been found to serve in and to explain a wide range of phenomena such as occur in the subjects of mechanics, heat, electricity, magnetism, light, atomic and nuclear physics, and in such related subjects as engineering, biophysics, meteorology and geophysics. In addition the subject of philosophy is profoundly influenced both by the methods and developments of physics.

The Bachelor of Arts and Master of Arts degrees are offered.
POLITICAL SCIENCE is the study of government and politics both in their domestic and international aspects. By meeting requirements outlined below, a student may earn a Bachelor's degree in Political Science, in Political Science and Economics, or in Political Science and History. A Master of Arts degree in Political Science is also offered.

Courses offered in the Political Science department are designed to assist students in attaining the following objectives:

1. To assist all students in securing a broad liberal education and to equip them with the foundations for effective discharge of the duties of American citizenship;
2. To provide undergraduate preparation for those students who propose to continue the study of Political Science at the graduate level with the ultimate goal college teaching and research;
3. To offer a broad program of training for those students who plan careers in government or politics, including training both for the foreign service and the domestic public service at the national, state, and local levels;
4. To assist in preparing students for careers in teaching at both the elementary and secondary levels;
5. To provide a sound background for those students who intend to enroll in law or other professional schools.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN POLITICAL SCIENCE. 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:

A student may offer a combination major in Political Science and History, in Political Science and Economics, or in Political Science and Sociology. In each discipline, a student must select from a core curriculum of 45 credits in Political Science required, with 20 credits from courses numbered over 300 and including Political Science 491.

A student may offer a combination major in Political Science and History, in Political Science and Economics, or in Political Science and Sociology. In each discipline, a student must select from a core curriculum of 45 credits in Political Science required, with 20 credits from courses numbered over 300 and including Political Science 491 or History 491 or 492. Only one of the latter three will be counted in fulfilling the minimum of 20 upper division credits.

All students majoring in Political Science will complete the integrated introductory sequence 101, 202-203 before taking other courses in Political Science.

Upper division work in Political Science is offered in American Political Institutions, Comparative Government, International Affairs, Public Administration, Public Law, and Political Theory. Each major in Political Science must present credits in at least four of these fields.

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 20 credits in each discipline. The minimum of 45 credits in Political Science is required, with 20 credits from courses numbered over 300 and including Political Science 491. A student may offer a combination major in Political Science and History, in Political Science and Economics, or in Political Science and Sociology. In each discipline, a student must select from a core curriculum of 45 credits in Political Science required, with 20 credits from courses numbered over 300 and including Political Science 491 or History 491 or 492. Only one of the latter three will be counted in fulfilling the minimum of 20 upper division credits.

All students majoring in Political Science will complete the integrated introductory sequence 101, 202-203 before taking other courses in Political Science.

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 20 credits in each discipline. The minimum of 45 credits in Political Science is required, with 20 credits from courses numbered over 300 and including Political Science 491. A student may offer a combination major in Political Science and History, in Political Science and Economics, or in Political Science and Sociology. In each discipline, a student must select from a core curriculum of 45 credits in Political Science required, with 20 credits from courses numbered over 300 and including Political Science 491 or History 491 or 492. Only one of the latter three will be counted in fulfilling the minimum of 20 upper division credits.

A student may offer a combination major in Political Science and History, in Political Science and Economics, or in Political Science and Sociology. In each discipline, a student must select from a core curriculum of 45 credits in Political Science required, with 20 credits from courses numbered over 300 and including Political Science 491 or History 491 or 492. Only one of the latter three will be counted in fulfilling the minimum of 20 upper division credits.

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A student may offer a combination major in Political Science and History, in Political Science and Economics, or in Political Science and Sociology. In each discipline, a student must select from a core curriculum of 45 credits in Political Science required, with 20 credits from courses numbered over 300 and including Political Science 491 or History 491 or 492. Only one of the latter three will be counted in fulfilling the minimum of 20 upper division credits.

A student may offer a combination major in Political Science and History, in Political Science and Economics, or in Political Science and Sociology. In each discipline, a student must select from a core curriculum of 45 credits in Political Science required, with 20 credits from courses numbered over 300 and including Political Science 491 or History 491 or 492. Only one of the latter three will be counted in fulfilling the minimum of 20 upper division credits.
PRE-MEDICAL SCIENCES are designed for students who wish to prepare for entry into medical, dental, or nursing 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 degrees in any of the related sciences so long as they are able to include the required courses. These requirements 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 have more applicants than they can accept, 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, trigonometry, and preferably also advanced algebra and geometry. It is also recommended that the high school preparation include one year of a laboratory science, two years 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 minimal course requirements, demonstrates high competence, and has a relatively well-balanced personality. Since not all students graduating from medical schools are accepted, the pre-medical student is urged to plan his own University career with that idea in mind.

The pre-medical sciences student is advised to get a Bachelor's degree in a field of his own choice. However, he should make sure that he can satisfy within the time available (1) the University requirements for graduation, (2) the minimum pre-medical science requirements listed below, and (3) the major requirements in his selected field. The student should consult with the pre-medical sciences advisor during the freshman year, and consult with both the pre-medical sciences advisor and the advisor in the selected major beginning not later than the sophomore year in residence.

MINIMUM COURSE REQUIREMENTS FOR THE PRE-MEDICAL SCIENCES STUDENT. English, Phys. Ed., Mil. Sci., Group and other University requirements listed earlier in the guidebook; Chemistry through Organic Chemistry and Quantitative Analysis; Mathematics through Mathematics 153; One year of college physics; Zoology 104-105—Elementary Zoology or Zoology 101 or 202 and Zoology 201—Comparative Vert. Anatomy (embryology and genetics is recommended); A reading knowledge or 23 credits in French, German, or Russian.

SPECIAL REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE WITH A MAJOR IN THE PRE-MEDICAL SCIENCES. In addition to the minimum course requirements listed immediately above the student must take Psychology 5-10 credits; 15 credits of an approved course of study in one field; and additional electives selected from the non-sciences to complete University credit requirements for graduation.

Students who complete 135 credits of pre-medical work (plus six credits of Physical Education) at Montana State University, complete all requirements for the B.A. degree in the pre-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.

It is possible for the Pre-Medical Sciences student who has satisfied the course requirements specified above to earn a bachelor's degree in some other field than the Pre-medical Sciences. A degree in a related field such as Microbiology, Chemistry, Mathematics, or Zoology may be earned by completing minimal coursework in the area selected as approved by the Chairman of the major department concerned.

PRE-MEDICAL SCIENCES CURRICULUM

(Medicine, Dentistry, Veterinary Medicine)

Freshman Year

A W S Cr. Cr. Cr.

English 104-105—Freshman Composition
5 5 5
Mathematics (depends on placement) 151, 152, 153...
5 5 5
Chemistry 121-122—College Chemistry
5 5 5
Psychology 110—Introduction to Psychology
5
1 1 1
R.O.T.C. 101, 102, 105—Mil. or Air Science
1 or 2 1 2

Sophomore Year

Zoology 104-105—Elementary Zoology
5 5
Zoology 201—Comparative Vert. Anatomy
5 5
French, German or Spanish 101, 102, 103
5 5 5
Chemistry 261-262—Organic Chemistry
4 4
Chemistry 245—Quantitative Analysis
5
Health & P. E. 201, 202, 203—Sophomore P. E.
5
R.O.T.C. 291, 202, 203—Mil. or Air Science
2 or 1 1

Junior Year

Physics 111-112-113 or 121-122-123—General Physics
5 5 5
Foreign Languages 201-202-203
5 5 5
Zoology 302—Vertebrate Embryology
5
Chemistry 370—Elementary Physical Chemistry
5
Group requirements
8 5 5

Senior Year

Science Sequence or electives
17 15 15
Group requirements or electives
10 10 10

PSYCHOLOGY is the science concerned with principles of human behavior. It deals with processes of motivation, emotion, perception, learning, thinking, imagination and intelligence.

The Bachelor of Arts and Master of Arts degrees are offered.

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 for graduation listed earlier in the guidebook, the following special requirements must be completed for the Bachelor of Arts degree with a major in psychology, at least 45 credits in psychology, including Psychology 110, 210, 211, 212, 220, and 411, with at least 25 credits in psychology courses numbered above 299; and a reading knowledge or five quarters (33 to 25 credits) in one modern language. Other courses recommended for psychology majors include Mathematics 125; Philosophy 210 and 353; and Zoology 101 or 202.
<table>
<thead>
<tr>
<th>Bachelor Year</th>
<th>Science</th>
<th>Social</th>
<th>Humanities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychology</td>
<td>7-8</td>
<td>4-5</td>
<td>4-5</td>
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<tr>
<td>Mathematics</td>
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<td>5-6</td>
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<tr>
<td>Modern Language</td>
<td>2-3</td>
<td>2-3</td>
<td>2-3</td>
</tr>
<tr>
<td>English 104-105</td>
<td>5-6</td>
<td>5-6</td>
<td>5-6</td>
</tr>
<tr>
<td>History</td>
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<tr>
<td>Physical Education</td>
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</tr>
<tr>
<td>Military Science</td>
<td>2-3</td>
<td>2-3</td>
<td>2-3</td>
</tr>
<tr>
<td>Electives</td>
<td>3-4</td>
<td>3-4</td>
<td>3-4</td>
</tr>
</tbody>
</table>

**Special Requirements for the Master of Arts Degree in Psychology**

In addition to the general requirements of the Graduate School, the student in the environment upon human behavior, including at least 45 credits in courses numbered above 299, which may include no more than 10 credits in Psychology 699, and which must include Psychology 560, 561, 571, and 572. Upon completion of two quarters in residence or completion of 30 graduate credits, the student is required to pass a comprehensive written examination in selected areas of Psychology.

**Master of Arts in Guidance and Counseling**

See copy under Graduate School.

**Undergraduate Sequence**

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Cr.</th>
<th>Cr.</th>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 104-105</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics 125</td>
<td>5</td>
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<tr>
<td>Modern Language</td>
<td>102-103</td>
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<td>5</td>
</tr>
<tr>
<td>English 104-105</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Electives from Group II</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>PE 101-102-103—Physical Education</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>MS 101-102-103—Military Science (Men)</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**Sophomore Year**

| Psychology 210-211-212—General Psychology | 5 | 5 |
| Modern Language 213, 215 | 4 | 4 |
| Electives from Group II | 2 | 2 |
| PSYCHOLOGY 230—Psychological Statistics | 5 | 5 |
| Electives | 1 | 2 |
| PE 201-202-203—Physical Education | 1 | 1 |
| MS 201-202-203—Military Science (Men) | 1 | 1 |

**Junior Year**

| Psychology 411—Systematic Psychology | 4 | 4 |
| Electives | 2 | 2 |

**Senior Year**

| Psychology 444—Systematic Psychology | 2 | 2 |
| Electives | 2 | 2 |

**Special Requirements for the Master of Arts Degree in Psychology**

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**Master of Arts in Guidance and Counseling**

See copy under Graduate School.

**Undergraduate Sequence**

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<thead>
<tr>
<th>Freshman Year</th>
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</tr>
</thead>
<tbody>
<tr>
<td>English 104-105</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics 125</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Modern Language</td>
<td>102-103</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>English 104-105</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Electives from Group II</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>PE 101-102-103—Physical Education</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>MS 101-102-103—Military Science (Men)</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**Sophomore Year**

| Psychology 210-211-212—General Psychology | 5 | 5 |
| Modern Language 213, 215 | 4 | 4 |
| Electives from Group II | 2 | 2 |
| PSYCHOLOGY 230—Psychological Statistics | 5 | 5 |
| Electives | 1 | 2 |
| PE 201-202-203—Physical Education | 1 | 1 |
| MS 201-202-203—Military Science (Men) | 1 | 1 |

**Junior Year**

| Psychology 411—Systematic Psychology | 4 | 4 |
| Electives | 2 | 2 |

**Senior Year**

| Psychology 444—Systematic Psychology | 2 | 2 |
| Electives | 2 | 2 |

**Special Requirements for the Master of Arts Degree in Psychology**

In addition to the general requirements of the Graduate School, the student in the environment upon human behavior, including at least 45 credits in courses numbered above 299, which may include no more than 10 credits in Psychology 699, and which must include Psychology 560, 561, 571, and 572. Upon completion of two quarters in residence or completion of 30 graduate credits, the student is required to pass a comprehensive written examination in selected areas of Psychology.

**Master of Arts in Guidance and Counseling**

See copy under Graduate School.

**Undergraduate Sequence**

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Cr.</th>
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<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 104-105</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics 125</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Modern Language</td>
<td>102-103</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>English 104-105</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Electives from Group II</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>PE 101-102-103—Physical Education</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>MS 101-102-103—Military Science (Men)</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**Sophomore Year**

| Psychology 210-211-212—General Psychology | 5 | 5 |
| Modern Language 213, 215 | 4 | 4 |
| Electives from Group II | 2 | 2 |
| PSYCHOLOGY 230—Psychological Statistics | 5 | 5 |
| Electives | 1 | 2 |
| PE 201-202-203—Physical Education | 1 | 1 |
| MS 201-202-203—Military Science (Men) | 1 | 1 |

**Junior Year**

| Psychology 411—Systematic Psychology | 4 | 4 |
| Electives | 2 | 2 |

**Senior Year**

| Psychology 444—Systematic Psychology | 2 | 2 |
| Electives | 2 | 2 |

**Special Requirements for the Master of Arts Degree in Psychology**

In addition to the general requirements of the Graduate School, the student in the environment upon human behavior, including at least 45 credits in courses numbered above 299, which may include no more than 10 credits in Psychology 699, and which must include Psychology 560, 561, 571, and 572. Upon completion of two quarters in residence or completion of 30 graduate credits, the student is required to pass a comprehensive written examination in selected areas of Psychology.

**Master of Arts in Guidance and Counseling**

See copy under Graduate School.
RADIO AND TELEVISION courses are designed to prepare students for occupations in the broadcast media, for effective use of radio and television in connection with occupations in other fields, or for greater appreciation of the media as audience members. Graduates in radio-television have many vocational opportunities as announcers, performers, writers, newsmen, program directors, managers and executives of radio and television stations, or as radio-television specialists in advertising agencies, and other businesses.

Students work toward either a Bachelor of Arts degree in Journalism with specialization in radio and television, or a Bachelor of Arts degree with a major in Radio and 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. Most of the radio-television courses are offered by the School of Journalism, but some departments in the College of Arts and Sciences also have offerings in the program. Production of programs for broadcast from the University's studios is included in the course of study. Modern equipment of professional quality in new studios and an adherence to high standards of performance prepare students to make significant contributions and successful careers in the broadcasting profession.

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition, 101-102-103 recommended</td>
<td>9</td>
</tr>
<tr>
<td>Physical Education</td>
<td></td>
</tr>
<tr>
<td>R.O.T.C. (men) Mil. or Air Science 101-102-103</td>
<td>10</td>
</tr>
<tr>
<td>Group I</td>
<td></td>
</tr>
<tr>
<td>Group II</td>
<td>25</td>
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<tr>
<td>Group III</td>
<td>25</td>
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<tr>
<td>Foreign Language</td>
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<tr>
<td>English</td>
<td>21</td>
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<tr>
<td>Speech</td>
<td>21</td>
</tr>
<tr>
<td>Drama</td>
<td>21</td>
</tr>
<tr>
<td>Journalism</td>
<td>27-39</td>
</tr>
</tbody>
</table>

32 hours from the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Journalism—140, 340, 345, 346, 348, 440, 441, 442, 443, 490</td>
<td>90-92</td>
</tr>
<tr>
<td>Speech</td>
<td>25-27</td>
</tr>
<tr>
<td>Drama</td>
<td>25-27</td>
</tr>
<tr>
<td>Free Electives</td>
<td>186-188</td>
</tr>
</tbody>
</table>

FOR UNDERGRADUATES

118 (18) INTRODUCTORY STUDY OF RELIGION 1Q A W S 2. Basic religious problems which a student must face and work out for himself.

123 (25) LIFE AND TEACHINGS OF JESUS 1Q W 3. The origins, backgrounds, problems, occasions, motifs and messages of the four gospels with an attempt to relate the teaching for today.

142 (42) RELIGION IN AMERICA 1Q A S 3. The beliefs and practices of Judaism, Protestantism, Roman Catholicism, and representative sects.


241 (41) CHRISTIANITY TO 1700 1Q W 3. The background and development of the Christian Church, its spread through the Roman Empire and its growth in Europe, through the Reformation.

250 (190) BASIC CHRISTIAN CONVICTIONS 1Q W S 3. The doctrines of God, man, Jesus Christ, redemption, and Church, interpreted in meaningful terms for our day.

251 CHRISTIAN THINKERS BEFORE 1500 1Q W 2. The thought of outstanding theologians from Augustine, Aquinas, Luther, and Calvin, through study of their writings.

252 MODERN RELIGIOUS THINKERS 1Q W 2. The thoughts of outstanding theologians since 1800 through study of their writings.

294 (75) COMPARATIVE WORLD RELIGIONS 1Q A S 5, Su 3. The living religions of the world, their historical sequence and interrelationships.

320 THE PROPHETS AND THEIR TIMES 1Q A 3. The Old Testament prophets including Isaiah, Jeremiah, Ezekiel, and twelve other prophets, from Biblical writers' point of view and related to today.

330 PRINCIPLES OF RELIGIOUS EDUCATION 1Q W S 2. The objectives and curricula of the religious education of a child in relationship to home, school, university and church according to his particular religious culture.

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 the basic course for two years. The advanced courses normally lead to commissions in the armed forces of the United States. The scope of instruction is indicated below. Most University graduates who complete these courses and secure their commissions are ordered 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 SCIENCE

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 trigonometry, physics and either French, German or Spanish.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE WITH A MAJOR IN AIR SCIENCE

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>University Requirements</td>
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<td>English</td>
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<td>Physical Education</td>
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<tr>
<td>Air Science 101-103-103, 201-202-203</td>
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Major Requirements

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<tbody>
<tr>
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<tr>
<td>Physics</td>
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<td>History</td>
<td>15</td>
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<tr>
<td>Political Science</td>
<td>19</td>
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<tr>
<td>Geography</td>
<td>13</td>
</tr>
<tr>
<td>General 151-152-153</td>
<td>13</td>
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<tr>
<td>Foreign Language</td>
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<tr>
<td>Air Science 301-302-303, 304 (required)</td>
<td>16</td>
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</table>

Electives

(50% must be in upper division courses. A second major is recommended) 44-45

186
BASIC COURSE: AIR AGE CITIZENSHIP EDUCATION

101-102-103 (1abc) FOUNDATIONS OF AIR POWER-1
W 2, S 1. (101) Professional opportunities in the U. S. Air Force, fundamentals, and potential roles and responsibilities of Air Force personnel in the world; military research and development; air vehicle industries; and airlines and airways. (102) Foundational scientific background needed to include general aviation, commercial aviation, aircraft, aerodynamics, and guidance, control, navigational and propulsion systems. (103) Basic military training, with emphasis on functions, duties and responsibilities of cadet commissioned officers.

201-202-203 (2abc) FOUNDATIONS OF AIR POWER-2
W 2, S 1. Prereq 101-102-103. (201) Development of aerial warfare with emphasis on principles of war, employment of forces, changing weapons systems and weapon effects, aircraft, missile bases and facilities, and aerial operations. (202) Basic military training, with emphasis on functions, duties and responsibilities of cadet commissioned officers.

ADVANCED COURSE: AIR FORCE OFFICER DEVELOPMENT

Admission to the Advanced Course is on application of the student and selection by the Professor of Air Science and the President of the University. Once begun, successful completion of the six quarters constitutes for all bachelor’s degrees.

301-302-303 (301abc) AIR FORCE OFFICER DEVELOPMENT

ADVANCED COURSE: OFFICER TRAINING

Prepares the student for a commission as a Second Lieutenant in any branch of the United States Army Reserve. Admission is on the recommendation 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 constitutes for all bachelor degrees, unless sooner honorably discharged.

313 (112) SUMMER CAMP. No credit. Six weeks at an Army Training Center taken from mid-June to first of August. Practical military training and tactical exercises to include staff organizations and procedures at division level, coordination of the arms and services, functions and techniques of intelligence, training and operations, staff sections and the planning and conduct of tactical operations. Leadership, Drill and Command—include practical work in directing military drill of individuals and small unit tactics, including the principles and techniques of leading small units from the squad to the company in offensive and defensive operations. Continuation of small unit tactics and introduction to Army Communication Systems. Orientation of Summer Camp Activities. Continuation of Leadership, Drill and Command from 310.

MILITARY SCIENCE

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University of the Army, Leadership, Command and Staff exercises must be counted towards graduation by Air Science majors only.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE WITH A MAJOR IN MILITARY SCIENCE

University Requirements

English 101-102-103
Mathematics 100, 151, 152 or equivalent
Physics 113-114 or 221-222
Political Science 101, 103
General Science 111-112, other Group III subjects
Geography 331-332
Foreign Language French, German or Spanish 101-102-103, 215, 216, or equivalent
Electives (50% must be in upper division courses)

Military Science 301-302-303, 401-402-403

54-56
186

BASIC COURSE: MILITARY TRAINING FOR CITIZENSHIP

101-102-103 (1abc) INTRODUCTION TO THE ARMY 3Q A, W 1, S 2. Enter any quarter. (101) Army organizational principles, missions, and chain of command; practical instruction in Individual Weapons and Marksmanship with emphasis on preliminary marksmanship techniques and instructional methods to enable the student to teach others; progressive training in leadership through practical exercises and instruction in drill and ceremony. Emphasis placed on teamwork and proficiency required of the individual. (102) American Military History, emphasizing men, events and psychological patterns found in our Army today. (103) Continuation of instruction in Individual Weapons and Marksmanship and Leadership Drill and Command from 101.

201-202-203 ADVANCED INDIVIDUAL TECHNIQUES 3Q A, W 1, S 2. Prereq 101-102-103. Enter any quarter. (201) Map and Aerial Photography Reading to include the reading and employment of aerial photographs, military symbols, orientation, resction and the Military Grid Reference System; Leadership, Drill and Command, a continuation of 101 with emphasis on functions, duties, and responsibilities of junior leaders. (202) Recruits and Indirect Fire Weapons and Gunnery, to include mechanical functioning, nomenclature, principles of fire control and techniques of employment. Familiarization with automatic weapons. (203) Leadership, Drill, and Exercizes of Command, a continuation of Leadership and Command Drill and Command from 201. Familiarization with Automatic Weapons and Comprehensive Course on U. S. Army and National Security.

SECRETARIAL- HOME ARTS—67

SECRETARIAL - HOME ARTS is a curriculum, designed especially for women, combining work in Secretarial Science and Home Economics, to provide a base for successful home and family life; and Secretarial Science provides training for a vocation for immediate or future use. The courses in secretarial science provide training in typing, shorthand, filing, the use of office machines, and secretarial practice as preparation for 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 living. In addition, a general education is provided in areas outside the major fields.

SPECIAL REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN SECRETARIAL-HOME ARTS. In addition to the requirements listed below, the student must satisfy the foreign language requirement as listed earlier in the Guidebook.
SOCIAL WELFARE—SOCIOLOGY

SOCIAL WELFARE explores the ways in which social problems affect people; the agencies which help people deal with these problems; and the methods used in such endeavor. Social Welfare courses involve recorded and some field work or observation in addition to regular class work. Broad studies in other social sciences are required.

SOCIAL WELFARE functions. Development of modern social welfare and the distinctive features of the profession.

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FOR UNDERGRADUATES

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<tr>
<td>361 (170b) INTRODUCTION TO RECREATION LEADERSHIP 1Q W 3 Prereq Sociology 101. Sociology of play, recreation and leisure time; community approach to recreation; recreation for industrial workers; hospital workers; senior citizens, playgrounds; facilities and resources. Credit not allowed for this and H&amp;P 361.</td>
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<tr>
<td>392 (170a) RECREATION LEADERSHIP (SOCIAL RECREATION) IQ W 3 Prereq Sociology 101. Principles and practice in group leadership, especially for voluntary groups. Credit not allowed for this and H&amp;P 362.</td>
</tr>
<tr>
<td>393 (170c) RECREATION LEADERSHIP (CAMP LEADERSHIP) IQ S 3 Prereq Sociology 101. Principles and practice in group leadership of nationals activities; skills and understandings essential to organized camping. Credit not allowed for this and H&amp;P 363.</td>
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FOR UNDERGRADUATES AND GRADUATES

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<tr>
<td>391 (S125) GROUP METHODS IN TEACHING 1Q Su only 3. Prereq 10 credits in the Social Sciences. The use of group methods in the teaching of content and skill subjects and for special groups such as the handicapped. Credit not allowed for this and H&amp;P 364.</td>
</tr>
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SOCIOLOGY is a field in social science concerned with the behavior of people in groups, particularly in social institutions and cultures, and the institutional arrangements under which people live. It is concerned with contemporary civilization.

SOCIOLOGY is also of interest to other social scientists, for sociology is one of the more general fields of human behavior. The Bachelor of Arts degree may be earned either in Sociology or a combination of Sociology and Anthropology. The Master of Arts degree is also offered (see Graduate School).

GRADUATES may engage in teaching, research, or government service. There are many opportunities for scholarships or fellowships in graduate work. Sociology is a field which offers opportunities for work in the social welfare, voluntary service, school social services, youth services, etc. A foreign language is required as listed earlier in the Guidebook.

SPECIAL REQUIREMENTS FOR THE GRADUATE DEGREE.

In addition to the general requirements for graduation listed earlier in the Guidebook, the following courses must be completed for the Bachelor of Arts degree with a major in Social Welfare: 50 credits in departmental courses including at least 30 credits in Social Welfare. A foreign language is required as listed earlier in the Guidebook.

During the first two years, the following courses should be taken to provide a broad foundation: Anthropology 152 or 153; Economics 201-202-203; History 102-103 or 252-253; Political Science 202-203; Psychology 110; Sociology 101 and 102; and Social Welfare 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.

GENERAL INFORMATION: The undergraduate major in Social Welfare is available for those wishing a practical orientation toward social problems. Both theory and practice are emphasized to achieve the effectiveness needed on the job. Those wishing to enter graduate schools of social work 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 Welfare content and method. Group methods are freely used.
SPEECH—69

includes courses in the field of General Speech, and according to the interest of the student. It may be in one or more areas of concentration: Public Address and Forensics, Speech Pathology and Audiology, Speech Education, Oral Interpretation and Radio and Television, Historical Pageant-Drama and Sociodrama, and Communications Research and Theory. Speech Graduates teach Speech (including the coaching of forensics) in high school or college, enter employment in radio-television, public relations, and speech and hearing therapy, and become speech therapists. 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 practical 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.

The Bachelor or Arts and Master of Arts degrees are offered.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE. In addition to the general requirements for graduation listed earlier in the guidebook, the following requirements must be completed for the Bachelor of Arts degree with a major in Speech: a minimum of 45 credits in Speech, including Speech 111, 112, 118, 214 or 261, 291, and Drama 212. The foreign language requirement listed earlier in the guidebook is not required of all candidates for honors in Speech.

GRADUATE STUDY. In addition to meeting the requirements above, students should take Speech 518, Speech Pathology 330, Drama 212, and proficiency in proficiency in academic work.

FOR UNDERGRADUATES

111 (20) PRINCIPLES OF SPEECH 1Q A W S S 5. This course aims, through various experiences in group discussion, oral reading, and speech-making, to develop constructive attitudes, organized thinking, and discriminative listening as these contribute to effective communication and human relations.

112 (21) ARGUMENTATION IQ A W S 5. The principles by which belief and conduct are influenced through appeals to logical reasoning. Attention to evidence, analysis, logic, fallacies, refutation, rebuttal, and their application to current economic, social and political problems.

113 (22) PARLIAMENTARY PROCEDURE IQ S 1. The principles and practice of parliam entary procedures used in the conduct of fraternal, professional and community meetings.

118 (48) VOICE AND DICTION IQ A W S 3. Designed to establish good habits of speech through analysis of each student's vocal quality, and pronunciation. Improving voice quality, flexibility, and standards of good diction.

119 PHONETICS IQ A 3. The analysis of sounds, utilizing the phonetic alphabet for the purpose of improving individual speech.

214 (42) DISCUSSION TECHNIQUES 1Q A 3. Study and practice in the methods of making inquiries into and solving problems by the means of group thinking.

215 (76) PUBLIC PERFORMANCE 1Q A W S V 1-2 R-4 Prereq c/l. The principles of public performance. Practice in presenting fame public audiences oral readings, lecture recitals, choral reading or public addresses.

241 (45) RADIO-TELEVISION SPEECH 1Q W 3. Prereq 112 and Journalism 140. Principles and practice in adapting pronunciation, articulation and vocal pattern to the various forms of speaking for radio and television. Analysis of individual voices by tape recording.

251 (69a) BEGINNING ORAL INTERPRETATION IQ A 3 Prereq 118. Development of responsiveness to the meaning of literature, and of the ability to read orally so as to communicate this appreciation to others.

252 (69b) INTERMEDIATE ORAL INTERPRETATION IQ W 3 Prereq 251. Development of appreciation of the major periods of literature in an appropriate and individual style. The form and content of literature as they affect the understanding and performance of the interpreter.

FOR UNDERGRADUATES AND GRADUATES

116 (151) BUSINESS AND PROFESSIONAL SPEAKING 1Q A W 3. Prereq 5. The methods and techniques of speaking by leaders in business, labor, education, and the professions.

117 (152) SPEECH IN TEACHING AND LEARNING IQ A 3 Prereq 5 or in Speech. The speech competence of the teacher, the use of speech as a teaching device, and the principles by which the teacher works with the speech of his students.

118 (148) APPLIED PHONETICS IQ S 2 Prereq 119 or =. The recognition and production of the sounds of spoken English, with an analysis of their phonetic structure.
SPEECH PATHOLOGY AND AUDIOLOGY

Individuals with speech and hearing disorders constitute our largest group of exceptional persons. Study in the field of speech pathology and audiology evaluates these disorders, their causes and remedial principles.

Students interested in these studies take their Bachelor of Arts degree with a major in speech, but vary their course selection sufficiently to obtain the academic requirements necessary for Speech Pathology Certification, or Speech Hearing Certification, or both, as designated by the American Speech and Hearing Association Standards. The clinical requirements leading to the various degrees are also sufficient to provide the necessary supervised clinical practice required in these certifications.

A thorough understanding of a person with speech or hearing disorders, or both, requires that the student be well founded in many areas of behavioral and natural science. Consequently the courses required are offered by many departments. Students study in Psychology, Speech, Education, Physiology, Anatomy, Acoustics, and Sociology as well as take specific courses in Speech Pathology and Audiology.

Graduates at the B.A. level, usually find positions in public school systems or clinics as speech and hearing therapists. A Master's Degree in Speech Pathology and Audiology is generally required for the many positions available in hospitals, clinics and government programs, or as supervisors in the schools. A well qualified person in this field may go into college teaching, into research or into supervisory clinical positions. Positions in this field at the present time and in the foreseeable future far exceed the number of trained individuals.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE

DX - SPEECH for students emphasizing Speech Pathology and Audiology: In addition to the general requirements listed earlier in the undergraduate section the student must satisfactorily complete at least 29 hours in speech pathology and audiology including 251, 330, 331, 335-336, 340, 342, and 6 hours of 333. Psychology 110, 230, 360; Sociology 101, 202, 311; and Philosophy 350, 351, 352, 353; and 600. For majors in this area are Speech 352, 353; Psychology 210, 211, 220, 331, 600, 606, 352; 353; and 368; and Educ 208, 301, 334, and 642. The foreign language requirement listed earlier in the guidebook must be satisfied.

FOR UNDERGRADUATES

231 VOICE SCIENCE 1Q W Su 3 Prereq Speech 116. Basic scientific concepts and principles fundamental to the understanding of voice and speech phenomena.

330 INTRODUCTION TO SPEECH PATHOLOGY 1Q A S Su 3. The causes and general principles of treatment of speech disorders, and speech correction as an educational and clinical field.

331 DIAGNOSIS AND APPRAISAL OF SPEECH DISORDERS 1Q A Su 3. Course includes a survey of diagnostic techniques employed in the diagnosis and appraisal of speech and hearing problems. Development of case management techniques and principles of patient care.

332 CLINICAL PRACTICUM 1Q A W S Su 2-4 Prereq or Corequisite 331. Sixty hours per quarter of supervised clinical practice in the Speech and Hearing Clinic.


334 INTRODUCTION TO AUDIOLOGY 1Q S 4 Prereq 330. The basic psychological and auditory dimensions of the auditory mechanism and a survey of the fundamentals and principles related to the measurement of hearing loss.


343 ADVANCED CLINICAL PRACTICUM 1Q A W S Su 1-3 R 4-9. Supervised clinical practice beyond that provided in the preceding clinical course.

345 METHODS IN PUBLIC SCHOOL SPEECH AND HEARING THERAPY 1Q A Su 2 Prereq 333, 335, 336, 342. Methods in speech and hearing therapy used in public school programs with emphasis on the elementary level.

436 PRACTICUM IN PUBLIC SCHOOL SPEECH AND HEARING THERAPY 1Q A W S Su 2-4. Prereq Educ 301, Corequisite 435. Evaluation and Auditory Rehabilitation in speech and hearing program under supervision in a cooperating public school. Thirty clock hours of practical experience for each credit.

900 PROBLEMS a/q V R-6 Prereq 25 credits in Speech and c/l.

FOR GRADUATES

543 STUTTERING 1Q S Su 3 Prereq 336 or c/l. Lectures, readings, demonstrations and supervised experience in the research, theory, and therapeutic principles of stuttering.

552-553 ORGANIC DISORDERS OF SPEECH 2Q W Su 3 Prereq 330 or 336. lectures and supervised experience pertaining to the various organic pathologies of speech with specific emphasis on cerebral palsy, alveolar cleft and miscellaneous organic pathologies of voice. (353) Theories, research and remedial techniques in the areas of speech. A thorough understanding of a person with speech or hearing disorders, or both, requires that the student be well founded in many areas of behavioral and natural science. Consequently the courses required are offered by many departments. Students study in Psychology, Speech, Education, Physiology, Anatomy, Acoustics, and Sociology as well as take specific courses in Speech Pathology and Audiology.

Graduates at the B.A. level, usually find positions in public school systems or clinics as speech and hearing therapists. A Master's Degree in Speech Pathology and Audiology is generally required for the many positions available in hospitals, clinics and government programs, or as supervisors in the schools. A well qualified person in this field may into college teaching, into research or into supervisory clinical positions. Positions in this field at the present time and in the foreseeable future far exceed the number of trained individuals.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE

DX - SPEECH for students emphasizing Speech Pathology and Audiology: In addition to the general requirements listed earlier in the undergraduate section the student must satisfactorily complete at least 29 hours in speech pathology and audiology including 251, 330, 331, 335-336, 340, 342, and 6 hours of 333. Psychology 110, 230, 360; Sociology 101, 202, 311; and Philosophy 350, 351, 352, 353; and 600. For majors in this area are Speech 352, 353; Psychology 210, 211, 220, 331, 600, 606, 352; 353; and 368; and Educ 208, 301, 334, and 642. The foreign language requirement listed earlier in the guidebook must be satisfied.

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345 METHODS IN PUBLIC SCHOOL SPEECH AND HEARING THERAPY 1Q A Su 2 Prereq 333, 335, 336, 342. Methods in speech and hearing therapy used in public school programs with emphasis on the elementary level.

436 PRACTICUM IN PUBLIC SCHOOL SPEECH AND HEARING THERAPY 1Q A W S Su 2-4. Prereq Educ 301, Corequisite 435. Evaluation and Auditory Rehabilitation in speech and hearing program under supervision in a cooperating public school. Thirty clock hours of practical experience for each credit.

900 PROBLEMS a/q V R-6 Prereq c/l.
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 conservation and management. Wildlife Technology stresses biological concepts; Wildlife Management the relationship of wildlife to problems of land management.

Closely allied are the operations of the Montana Cooperative Wildlife Research Unit at the University which is controlled, staffed, and supported by the Montana Game and Fish Commission, the United States Fish and Wildlife Service, the Wildlife Management Institute of Washington, D. C., and Montana State University "to provide full active cooperation in the advancement, organization, and operation of wildlife education, research, extension and demonstration programs." The Unit investigates current wildlife problems in order to preserve and improve wildlife resources. It engages in research which contributes to the training of graduate students only.

Four years are required for the Bachelor of Science degree. The degree of Master of Science in Wildlife Technology is also offered (see Graduate Studies). Undergraduate courses are selected from other curricula as prescribed below. Instruction proceeds through use of textbooks, collateral readings, laboratory and field work.

Graduates find employment with state fish and game or conservation departments or federal agencies such as the Fish and Wildlife Service, the National Forest Service, the Soil Conservation Service, the Food and Drug Administration, etc. Some become managers of wildlife on private estates. The better positions go to those who have received the master's degree in Wildlife Management or Wildlife Technology. The field is becoming more specialized and certain institutions give graduate work leading to the doctor's degree. Graduates with advanced degrees may enter college or university teaching.

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

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN WILDLIFE TECHNOLOGY. In addition to the general requirements for graduation listed earlier in the guidebook, the following special requirements must be completed for the degree of Bachelor of Science in Wildlife Technology.

Required courses in the first two years and in the last two years in the Aquatic and Terrestrial options are listed below.

Students electing the Aquatic option should elect courses from the following:

Students electing the Terrestrial option should elect courses from the following:
- Zoology 303, 310, 328; Forestry 210; Geology 100; Bacteriology 200; General 450.

CURRICULUM IN WILDLIFE TECHNOLOGY

Freshman Year

Zool 104-105, 201—Elem. Zoology, Comparative Vertebrate Anatomy

Zool 201, 112 or 113—General Physics

Phys 101, 102 or 111—Physical Education

Bot 101-102-103—General Botany

Chem 101-102-103—General Chemistry

Engl 106—Freshman Composition

Math 151 (and 100 if required by placement)

Freshman Math

Bot 101-102-103—Physical Education

ROTC 101-102-103—Military or Air Science (Men)

A & W S

16-18 16-18 16-18

Sophomore Year

For 252, 250—Surveying, Mapping

Bot 250, 350—General Systematic Botany

Zool 310, 350, 370—Ichthyology, Ecology of Wildlife Populations, Aquatic Biology

Math 125—Statistics

Freshman Math

For 252, 250—Surveying, Mapping

Bot 250, 350—General Systematic Botany

Zool 310, 350, 370—Ichthyology, Ecology of Wildlife Populations, Aquatic Biology

Math 125—Statistics

Freshman Math

Zool 306 or 309—Ornithology, Mammalogy

Zool 311—Reptile, Amphibian Science

Zool 413—Fishery Science

Bot 350—Plant Ecology

For 360—General Range Management

Eelective (vary depending on Zool. 308 or 309)...

Senior Year

Zool 309, 350, 308—Mammalogy, Ecology of Wildlife Populations, Ornithology

Math 125—Statistics

Group Requirements

SUGGESTED CURRICULUM IN ZOOLOGY

Freshman Year

Zool 104-105-106—Elem. Zool, Field Zool

Engl 104-105—Freshman Composition

Math 151 (and 100 if required by placement)

Freshman Math

Zool 104-105-106—Elem. Zool, Field Zool

Engl 104-105—Freshman Composition

Math 151 (and 100 if required by placement)

Freshman Math

For 252, 250—Surveying, Mapping

Bot 250, 350—General Systematic Botany

Zool 310, 350, 370—Ichthyology, Ecology of Wildlife Populations, Aquatic Biology

Math 125—Statistics

Group Requirements

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.

The Master of Arts (or Master of Science) degree is also offered. Undergraduate courses involve much laboratory work as well as opportunities for field work. During the summer extensive field experience is available at the Biological Station maintained on Flathead Lake for qualified upperclass and graduate students.

Students who contemplate graduate work in Zoology should elect during their junior or senior years, Bacteriology 200 and Zoology 303, 309.

The foreign language requirement listed earlier in the guidebook must be satisfied. French, German or other language approved by the department may be used. It would be wise for prospective graduate students to secure a reading knowledge of both French and German if possible.

The Pre-medical Sciences student may earn a degree in Zoology by completing requirements in that curriculum and presenting a total of 3 credits in Zoology or related fields as follows: Zoology 104, 105, 201, 302, 283; any one course from Zoology 106, 308, 309, 310, 328, 364, 365, 366, 461; any one course from Microbiology and Public Health, or from Botany or one course from Zoology 310, 311, 345, 344.

Senior examinations are given only to candidates for honors.

MASTER OF ARTS OR MASTER OF SCIENCE IN TEACHING. See copy under Graduate School.
Sophomore Year

Chem 101-102-103 or 121-122-123 or 209—Gen'l Chem.
Inorganic Chem., or Qualitative Analysis

For Lang 114-116-118, intermediate, advanced French or German
Zool 201—Comparative Vertebrate Anatomy
Group Requirements
H&PE 201-202-203—Physical Education
ROTC 201-202-203—Military or Air Science (Men)
or 2 1 2

Junior Year

Zool 340, 341—Vertebrate Anatomy

Bot 121-122-123—Gen'l Botany, Spring Flora

Zool 302—Vertebrate Embryology

Group requirements or electives

Senior Year

Zool 385, 328—Genetics, Animal Ecology

Phys 111-118 or 121-122-123—Gen'l Physics

Zool 429—Biological Literature

Electives

FOR UNDERGRADUATES

Courses also offered at Biological Station (*courses only at Biological Station)

101 (101) GENERAL COMPARATIVE EMBRYOLOGY 1Q A W Su 5 (3-4), certain basic concepts including differentiation by the study of the characteristics of animal protoplasm and selected invertebrates and vertebrates.

104 (104b) ELEMENTARY ZOOLOGY 2Q A W 5 (3-4). A survey of the invertebrates and the prochordates, anatomy, physiology and phylogeny of various zoological principles.

105 (105) FIELD ZOOLOGY 1Q S 3 (2-4), Su at Biological Station. Prereq 101 or 104 or one laboratory course in Zool. The concepts of field work and natural history are studied. Field trips.

201 (201) COMPARATIVE VERTEBRATE ANATOMY 1Q S 5 (3-4), Prereq 101 or 104. Comparative anatomy, morphology, and phylogeny of the vertebrates.

202 (202) HUMAN PHYSIOLOGY 1Q S 5 (3-4), Prereq 102, sophomore standing or a structure, classification and life histories of birds. Weekly field trips. Students are expected to provide themselves with binoculars.

203 (Bact 103) PARASITOLOGY 1Q W 5 (3-4), Prereq 104-106. Parasites, including protozoans, nematodes, trematodes, and cestodes, their relationships to structure and function.

205 (205) HISTOLOGY AND MICROTECHNIQUE 1Q W 5 (3-4), Prereq 201 or 104 or 105 and c/i. Basic tissues are studied and a limited amount of work is done on organology. Microtechnique with emphasis on the paraffin method.

207 (107) AQUATIC BIOLOGY 1Q A S 5 (3-7, 10), Prereq 106 and Bot 123. The flora of fresh water with emphasis upon the flora and fauna invertebrate fauna, with some consideration of their relationships to the food chains and habitats of aquatic vertebrates. Ecology, identification and taxonomic position of aquatic organisms below vertebrates.

208 (108) ORNITHOLOGY 1Q S 5 (3-4), Su at Biological Station. Prereq 201. The bird fauna of Montana, with emphasis upon the structure, classification and life histories of birds. Weekly field trips. Students are expected to provide themselves with binoculars.

209 (209) ZOOLOGY 1Q A 5 (3-4), Su at Biological Station, Prereq 201. The systematics 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.

311-312 (111b) INvertebrate Zoology 2Q A W 5 (3-4), e/p, Prereq 108 and one additional Zool course. The anatomy, embryology, and behavior of the invertebrate animal.

321 PROTOZOOLOGY 1Q A 5 (3-4), Prereq 104-105. Taxonomy, structure, natural history, physiology, and ecology of non-parasitic protozoans.

322 (122) ANIMAL ECOLOGY 1Q S 5 (3-4), e/p, Prereq 106, Bot 121-122-123 or 312-313 recommended. The relationships between animals and their environment. With special emphasis on the invertebrates. Saturday field trips.

323 VERTEBRATE ECOLOGY 1Q S 3 (3-4), Prereq 201, 302 or c/i. The microscopic anatomy and the normal physiology of the major glands of internal secretions of vertebrates. Correlative problems employing surgical and experimental techniques may be undertaken.

340-341 (140ab) VERTEBRATE PHYSIOLOGY 2Q A W 5 (3-4)

Prereq 201 or =, three quarters of college chemistry or c/i. (340) General physiological properties of protoplasm; blood, body fluids, and circulatory systems; reproduction and excretion; digestion, nutrition and intermediary metabolism; excretion, conduction, responses, senses; endocrinology and reproduction.

350 (150) ECOLOGY OF WILDLIFE POPULATIONS 1Q W 3 (2-6) Prereq 106. The population ecology of wildlife species, with emphasis on recent literature. Productivity, turnover, carrying capacity, predation, methods of census and harvest.

364 (164) NATURAL HISTORY OF INVERTEBRATES 1Q Su 3 (2-6) Prereq 201, sophomore standing. Identification and distribution of the invertebrates of the Rocky Mountain area. Although all invertebrates other than insects and helminths are studied, emphasis is placed on the invertebrates below vertebrates.

369 (169) ECOLOGY OF WILDLIFE POPULATIONS 1Q Su 3 (2-6) Prereq 201, sophomore standing. Identification and distribution of the invertebrates of the Rocky Mountain area. Although all invertebrates other than insects and helminths are studied, emphasis is placed on the invertebrates below vertebrates.

365 (166) ECOLOGY OF WILDLIFE POPULATIONS 1Q Su 3 (2-6) Prereq 201, sophomore standing. Identification and distribution of the invertebrates of the Rocky Mountain area. Although all invertebrates other than insects and helminths are studied, emphasis is placed on the invertebrates below vertebrates.

FOR GRADUATES

501 AREAS AND CONCEPTS OF ZOOLOGY 1Q A 2 Prereq graduate standing in Zoology or in Wildlife Management. An orientation course for all new graduate students in zoology.

510 (210) POPULATION AND COMMUNITY ECOLOGY 1Q S 5 (2-8) Prereq 306 or 308 or both, or 209 and 301, or Bot 121 to 123 or Bot 326. The genetics and populations of wildlife species, with an analysis of, and some actual field experience in, methods employed in attacking these problems. Field trips.

511 (211) BIOLOGICAL LITERATURE 1Q W 1 (2-9) Prereq 101 and 104 or 311 or 312. Survey of the literature of the work of the theories concerning the trend of heredity, involving consideration of Mendelian principles, chromosomal aberrations, extrachromosomal inheritance, their relationship to structure and function.

512 (212) PROBLEMS IN VERTEBRATE MORPHOLOGY AND TAXONOMY 1Q A W 5 (3-0) Prereq 105 or 101 and one additional Zool course. The insect fauna, both immature and adult, aquatic habitats of Western Montana.

513 (213) GENETICS 1Q A 5 (3-4) Prereq 201 or Bot 223. The mechanism of heredity, involving consideration of Mendelian principles, linkage systems, chromosomal aberrations, extrachromosomal inheritance, and their relationship to structure and function.

516 (216) ECOLOGY OF WILDLIFE POPULATIONS 1Q W 3 (2-6) Prereq 307. The problems involved in investigations on fisheries biology with an analysis of, and some actual field experience in, methods employed in attacking these problems. Field trips.

517 (217) BIOLOGICAL LITERATURE 1Q W 1 (2-9) Prereq 101 and 104 or 311 or 312. Survey of the literature of the work of the theories concerning the trend of heredity, involving consideration of Mendelian principles, chromosomal aberrations, extrachromosomal inheritance, their relationship to structure and function.

520 (220) ADVANCED ZOOLOGICAL PROBLEMS 1Q a v 1-5 Students with sufficient preparation and ability pursue original investigations.
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