1-1-1963

1963-1964 Course Catalog

University of Montana--Missoula. Office of the Registrar

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The wilderness is almost next door to the University. Scores of hidden lakes, and the ever-present mountain peaks make this one of the most handsome and rugged scenic areas of the nation.

—Photo by Ernst Peterson
Climax to the academic year is the parade of mortar boards and gowns with their wearers bound for graduation ceremonies.
The campus has one of the most stunning backdrops of any American University—Mount Sentinel. The mountain itself is actually an extension of the campus, a guardian wall at the edge of historic Hellgate canyon.
Endless miles of forest roadways invite the visitor deep into the heart of the Montana mountains. The countryside abounds in gushing trout streams; wildlife is as near as the next upland forest clearing.

Photo courtesy Montana Highway Commission
THE UNIVERSITY OF MONTANA

Alfred J. Dubbe, Acting Executive Secretary

The University of Montana is constituted under the provisions of Chapter 92 of the Laws of the Thirteenth Legislative Assembly, approved March 14, 1913 (effective July 1, 1915).

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

MONTANA STATE BOARD OF EDUCATION

Ex-officio Regents of the University of Montana

TIM BABCOCK, Governor Ex-Officio President
FORREST H. ANDERSON, Attorney General Ex-Officio
HARRIET E. MILLER, Sup't. of Public Instruction Ex-Officio

GEOGE N. LUND, 1964 Reserve

MRS. F. H. PETRO, 1965 Miles City
BOYTON, G. PAIGE, 1966 Phillipsburg
JOHN D. FRENCH, 1967 Ronan
G. TH. MILLER, 1968 Glendive
GORDON L. DOERING, 1969 Helena
JOHN O'NEILL, 1970 Butte

A. A. ARRA, 1971 Cut Bank

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 Biological Station (Flathead Lake)
The School of Law The Forest and Conservation Experiment Station
The School of Pharmacy The Forest Nursing School
The School of Forestry The Lubrecht Experimental Forest
The School of Journalism The School of Education
The School of Business The School of Fine Arts
The School of Business Administration The Summer Session
The School of Administration The University Cooperative
The School of Administration The University Press
The School of Education The Graduate School
The School of Fine Arts The Biological Station (Missoula)
The School of Home Economics The Eastern Montana Branch Station (Sidney)
The School of Nursing The Northern Montana Branch Station (Havre)
The Agricultural Experiment Station The North Western Branch Station (Creston)
The Agricultural Experiment Station The S. Range Station (Miles City)
The Agricultural Experiment Station The Western Montana Branch Station (Corvallis)
The Agricultural Experiment Station The Engineering Experiment Station
The Montana Grain Inspection Laboratory The Agricultural Extension Service
The Montana Wool Laboratory The Public Service Division
The Central Montana Branch Station The Summer Quarter
(The Moccasin) The Graduate Division

Leon H. Johnson, Acting President

MONTANA STATE COLLEGE, BOZEMAN

Established February 16, 1893, and consisting of

The Division of Agriculture The Eastern Montana Branch Station (Huntley)
The Division of Education The Huntley Branch Station (Huntley)
The Division of Engineering The Northern Montana Branch Station (Havre)
The Division of Letters and Science The North Western Branch Station (Creston)
The Division of Professional Schools The S. Range Station (Miles City)
The School of Architecture The Western Montana Branch Station (Corvallis)
The School of Art The Engineering Experiment Station
The School of Home Economics The Agricultural Extension Service
The School of Nursing The Public Service Division
The School of Nursing The Summer Quarter
The School of Nursing The Graduate Division
The School of Nursing The Biological Station (Missoula)
The School of Nursing The Central Montana Branch Station (Moccasin)
The School of Nursing The Biological Station (Flath...}

E. G. KOCH, Acting President

MONTANA SCHOOL OF MINES, BUTTE

Established February 17, 1893, and consisting of

The Course in Mining The Course in Geological Engineering
The Course in Metallurgical Engineering The Course in Petroleum Engineering
The Course in Mineral Dressing Engineering The Graduate School
The course in Educational Engineering The Bureau of Mines and Geology

Summer Field Courses

E. G. KOCH, Acting President

WESTERN MONTANA COLLEGE OF EDUCATION, DILLON

Established February 23, 1893, and consisting of

The four-year Course in Teacher Education, Elementary and Secondary Education
The summer Quarter
The Teacher Service Division The two-year General College Summer Session
The Graduate Division The courses and Pre-Professional Courses Summer Session

JAMES E. SHORT, Acting President

EASTERN MONTANA COLLEGE OF EDUCATION, BILLINGS

Established March 12, 1925, and consisting of

The Division of Education in Elementary, Secondary, and Graduate Education
The two-year Course in Business Education The Division of Humanities
The two-year Course in Teacher Education, Elementary, and Secondary Education The Division of Language and Literature
The two-year Course in Teacher Education, Elementary, and Secondary Education The two-year Course in Vocational-Technical Training

Herbert L. Steele, Acting President

NORTHERN MONTANA COLLEGE, HAVRE

Established March 8, 1929, and consisting of

The Four-year Course in Teacher Education, Elementary and Secondary Education
The Two-year Course in Elementary Education, Elementary and Secondary Education
The two-year Course in Teacher Education, Elementary, and Secondary Education
The two-year Course in Teacher Education, Elementary, and Secondary Education

Joseph R. Crowley, Acting President

CONDESED CALENDAR

The University of Montana

Winter Quarter, 1963 through Summer, 1965

MONTANA STATE UNIVERSITY

Missoula

Winter Quarter opens January 7, 1963
Spring Quarter opens April 1, 1963
Summer Quarter opens June 17, 1963
Autumn Quarter opens September 25, 1963
Winter Quarter opens January 6, 1964
Spring Quarter opens March 30, 1964
Summer Quarter opens June 15, 1964
Autumn Quarter opens September 21, 1964
Winter Quarter opens January 4, 1965
Spring Quarter opens March 29, 1965
Summer Quarter opens June 14, 1965

MONTANA STATE COLLEGE

Bozeman

Winter Quarter opens January 7, 1963
Spring Quarter opens April 1, 1963
Summer Quarter opens June 18, 1963
Autumn Quarter opens September 22, 1963
Winter Quarter opens January 4, 1964
Spring Quarter opens March 30, 1964
Summer Quarter opens June 16, 1964
Autumn Quarter opens September 21, 1964
Winter Quarter opens January 4, 1965
Spring Quarter opens March 29, 1965
Summer Quarter opens June 15, 1965

MONTANA SCHOOL OF MINES

Butte

Second Semester opens February 4, 1963
First Semester opens September 22, 1963
Second Semester opens September 28, 1964
First Semester opens February 8, 1965

WESTERN MONTANA COLLEGE OF EDUCATION

Dillon

Winter Quarter opens January 7, 1963
Spring Quarter opens April 1, 1963
Summer Quarter opens June 17, 1963
Autumn Quarter opens September 25, 1963
Winter Quarter opens January 6, 1964
Spring Quarter opens March 30, 1964
Summer Quarter opens June 15, 1964
Autumn Quarter opens September 21, 1964
Winter Quarter opens January 4, 1965
Spring Quarter opens March 29, 1965
Summer Quarter opens June 14, 1965

EASTERN MONTANA COLLEGE OF EDUCATION

Billings

Winter Quarter opens January 7, 1963
Spring Quarter opens March 25, 1963
Summer Quarter opens June 17, 1963
Autumn Quarter opens September 25, 1963
Winter Quarter opens January 6, 1964
Spring Quarter opens March 30, 1964
Summer Quarter opens June 15, 1964
Autumn Quarter opens September 21, 1964
Winter Quarter opens January 4, 1965
Spring Quarter opens March 29, 1965
Summer Quarter opens June 14, 1965

NORTHERN MONTANA COLLEGE

Havre

Winter Quarter opens January 2, 1963
Spring Quarter opens March 25, 1963
Summer Quarter opens June 12, 1963
Autumn Quarter opens September 24, 1963
Winter Quarter opens January 4, 1964
Spring Quarter opens March 30, 1964
Summer Quarter opens June 15, 1964
Autumn Quarter opens September 21, 1964
Winter Quarter opens January 4, 1965
Spring Quarter opens March 29, 1965
Summer Quarter opens June 16, 1965
PURPOSE OF CATALOG

The Catalog 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 Catalog 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 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 CATALOG

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

2. When checking on particular courses, be sure to review the EXPLANATION OF SYMBOLS (See Index).

3. 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 Catalog.

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

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

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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 STATE UNIVERSITY

CALENDAR 1963 - 1964

1963

AUTUMN QUARTER
September 23-28, Monday through Saturday Orientation
Registration
September 26-27, Thursday and Friday Registration
September 29, Monday Instruction begins
November 11, Monday Veterans' Day, a holiday
November 27-December 1, Wednesday through Sunday Thanksgiving Holiday
December 16-18, Monday through Friday Undergraduate examinations
December 20, 8:20 p.m. Autumn Quarters end

WINTER QUARTER
January 6, Monday Registration
January 7, Tuesday Instruction begins
February 17, Monday Charter Day
March 18-20, Monday through Friday Examinations
March 20, 8:20 p.m. Winter Quarters end

SPRING QUARTER
March 30, Monday Registration
March 31, Tuesday Instruction begins
May 30, Saturday Memorial Day, a holiday
June 6, Monday Commencement
June 8-12, Monday through Friday Examinations
June 12, 8:20 p.m. Spring Quarter ends

SUMMER SESSION
June 13, Monday (10 weeks and first term) Registration
June 16, Monday Instruction begins
July 4, Saturday Independence Day
July 6-12, Second term begins
August 21, Friday Session ends

AUTUMN QUARTER
September 21-26, Monday through Saturday Orientation
September 24-25, Thursday and Friday Week and Registration
September 28, Monday Registration
November 11, Monday Veterans' Day, a holiday
November 26, Thursday Thanksgiving Day, a holiday
December 14-16, Monday through Friday Examinations
December 18, 5:20 p.m. Autumn Quarter ends

FALL SEMESTER, 1963
September 23-24, Monday and Tuesday Orientation of New Law Students
September 24, Tuesday Law Students Registration
September 25, Wednesday Classes begin at 8:30 a.m.
November 11, Monday Veterans' Day—No classes
November 27, Wednesday Thanksgiving vacation begins
December 2, Monday Classes resume at 8:30 a.m.
December 21, Saturday Christmas vacation begins
January 6, 1964, Monday Classes resume at 8:30 a.m.
January 27-February 1, Monday through Saturday Semester Examinations

SPRING SEMESTER, 1964
February 5, Wednesday Registration
February 6, Thursday Classes begin at 8:30 a.m.
March 21, Saturday Spring vacation begins
March 30, Monday Classes resume at 8:30 a.m.
May 26-28, Tuesday through Thursday Semester Examinations
June 6, Monday Commencement

FALL SEMESTER, 1964
September 21-22, Monday and Tuesday Orientation of New Law Students
September 22, Tuesday Law Students Registration
September 23, Wednesday Classes begin at 8:30 a.m.
November 11, Wednesday Veterans' Day—No classes
November 22, Wednesday Thanksgiving vacation begins
December 3, Monday Classes resume at 8:30 a.m.
December 22, Saturday Christmas vacation begins
January 4, 1965, Monday Classes resume at 8:30 a.m.
January 25-30, Monday through Saturday Semester Examinations

SPRING SEMESTER, 1965
February 3, Wednesday Registration
February 4, Thursday Classes begin at 8:30 a.m.
March 20, Saturday Spring vacation begins
March 29, Monday Classes resume at 8:30 a.m.
May 25-June 1, Tuesday through Thursday Semester Examinations
June 6, Monday Commencement

LAW CALENDAR 1963 - 1964

FALL SEMESTER, 1963
September 23-24, Monday and Tuesday Orientation of New
Law Students
September 24, Tuesday Registration
September 25, Wednesday Classes begin at 8:30 a.m.
November 11, Monday Veterans' Day—No classes
November 27, Wednesday Thanksgiving vacation begins
December 2, Monday Classes resume at 8:30 a.m.
December 21, Saturday Christmas vacation begins
January 6, 1964, Monday Classes resume at 8:30 a.m.
January 27-February 1, Monday through Saturday Semester Examinations

SPRING SEMESTER, 1964
February 5, Wednesday Registration
February 6, Thursday Classes begin at 8:30 a.m.
March 21, Saturday Spring vacation begins
March 30, Monday Classes resume at 8:30 a.m.
May 26-28, Tuesday through Thursday Semester Examinations
June 6, Monday Commencement

FALL SEMESTER, 1964
September 21-22, Monday and Tuesday Orientation of New
Law Students
September 22, Tuesday Registration
September 23, Wednesday Classes begin at 8:30 a.m.
November 11, Wednesday Veterans' Day—No classes
November 22, Wednesday Thanksgiving vacation begins
December 3, Monday Classes resume at 8:30 a.m.
December 22, Saturday Christmas vacation begins
January 4, 1965, Monday Classes resume at 8:30 a.m.
January 25-30, Monday through Saturday Semester Examinations

SPRING SEMESTER, 1965
February 3, Wednesday Registration
February 4, Thursday Classes begin at 8:30 a.m.
March 20, Saturday Spring vacation begins
March 29, Monday Classes resume at 8:30 a.m.
May 25-June 1, Tuesday through Thursday Semester Examinations
June 6, Monday Commencement
LOCAL EXECUTIVE BOARD
THEODORE JACOBS, Missoula
MRS. THOMAS E. MULRONEY, Missoula
ALEX M. STEPANZOFF, Missoula

ADMINISTRATIVE OFFICERS
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NATHAN B. BLUMBERG, Ph.D., Oxford University, Dean of the School of Journalism
CHARLES W. BOLIN, Ph.D., Indiana University, Dean of the School of Fine Arts
ARNOLD W. BOLLE, D.P.A., Harvard University, Dean of the School of Forestry
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ROBERT W. COONROOD, Ph.D., Stanford University, Dean of the College of Arts and Sciences; Director of the Summer Session
ROBERT E. SULLIVAN, LL.B., University of Notre Dame, Dean of the School of Law
ROBERT L. VAN HORNE, Ph.D., State University of Iowa, Dean of the School of Pharmacy
ANDREW C. COWGILL, M.A., University of Minnesota, Dean of Students
MAURINE CLOW, Ph.D., Stanford University, Associate Dean of Students
LEO SMITH, M.A., University of Washington, Registrar
KATHLEEN CAMPBELL, M.S., University of Denver, Librarian (on leave Autumn Quarter)

THE FACULTY

COLLEGE OF ARTS AND SCIENCES
COONROOD, ROBERT W., Ph.D., Stanford University, Dean; Director of the Summer Session

Botany and Microbiology
DIETZETZ, REUBEN A., Ph.D., State University of Iowa, Professor and Chairman
BEHAN, MARIE J., Ph.D., University of Washington, Instructor (on leave Autumn Quarter)
CHESNIN, MEYER, Ph.D., University of California, Professor
ERKUND, CARL M., M.D., University of Minnesota, Lecturer in Virology (Courtesey)
FAUST, RICHARD A., Ph.D., Purdue University, Assistant Professor
GERHART, JAMES W., Ph.D., State University of Iowa, Associate Professor, Biology (also Education) (on leave 1962-63)
GORDON, CLARENCE C., Ph.D., Washington State University, Assistant Professor
HASECK, JAMES R., Ph.D., University of Wisconsin, Assistant Professor
HARVEY, LEROY H., Ph.D., University of Michigan, Professor; Curator of the Herbarium; Assistant Director, Biological Station
HOYER, BILL H., Ph.D., University of Minnesota, Lecturer (Courtesey)
KRAMEZ, JOSEPH, Ph.D., University of Nebraska, Professor Emeritus
LACKMAN, DAVID B., Ph.D., University of Pennsylvania, Lecturer in Immunology (Courtesey)
LASKIN, CARL L., M.D., University of Minnesota; S.C. (hon.), Montana State University, Professor; Director, Stella Duncan Memorial Institute
NAKAMURA, MITSURO J., Ph.D., Boston University, Associate Professor
ORMBREK, RICHARD A., Ph.D., Brown University, Lecturer in Biochemistry (Courtesey)
PRECE, SHEARAN J., Jr., Ph.D., Washington State University, Assistant Professor
SALVIO, SAMUEL B., Ph.D., Harvard University, Lecturer (Courtesey)
SEVERT, JOSEPH W., Ph.D., University of Wisconsin, Professor Emeritus
SOLBERG, RICHARD A., Ph.D., University of California at Los Angeles, Assistant Professor (also Education); Acting Director, Biological Station
STEIN, OTTO L., Ph.D., University of Minnesota, Assistant Professor
TAYLOR, JOHN J., Ph.D., Ohio State University, Assistant Professor
CHOATE, CHARLIE (Mrs.), B.S., Colorado State University, Graduate Assistant
CLARK, JAMES H., B.A., Park College, Graduate Assistant
GILLILAND, VICTOR C., M.A., Humboldt State College, Graduate Assistant
LOMBELL, DONALD, B.A., Northwestern University, Graduate Assistant
MURIE, JAN O., B.S., Colorado State University, Graduate Assistant
OVERHOLSER, DONALD L., B.S., Oregon State University, Graduate Assistant
STEPHENSON, LASHAY W., B.S., University of Redlands, Graduate Assistant
THULLEN, ROBERT J., B.S.F., Montana State University, Assistant (Autumn Quarter)

Chemistry
STEWART, JOHN M., Ph.D., University of Illinois, Professor and Chairman
BATESMAN, WILLIAM G., Ph.D., Yale University, Professor Emeritus
HART, JAMES R., Ph.D., University of Illinois, Professor Emeritus
JUDAY, RICHARD E., Ph.D., University of Wisconsin, Professor
LORY, EARL C., Ph.D., Johns Hopkins University, Professor
OSTERFIELD, ROBERT K., Ph.D., University of Illinois, Associate Professor
THOMAS, FORREST D., Ph.D., Pennsylvania State University, Assistant Professor
VAN MEYER, WAYNE P., Ph.D., University of Washington, Assistant Professor
YATES, LELAND M., Ph.D., Washington State University, Associate Professor (in charge of the storeroom)
ADAMOWICZ, NORMAN C., B.S., Wayne State University, Graduate Assistant (Autumn and Winter Quarters)
CABILL, WILLIAM P., B.A., Montana State University, Graduate Assistant
DUVALL, GARY A., B.A., Montana State University, Graduate Assistant (Autumn Quarter)

Economics
WALLACE, ROBERT F., Ph.D., University of Minnesota, Professor and Chairman
HELTHUR, GEORGE E., B.D., University of Michigan, Associate Professor
LEONARD, JAMES R., B.A., University of Texas, Instructor
SHANNON, RICHARD E., Ph.D., Ohio State University, Associate Professor
WHEELER, ROBERT D., M.A., Northwestern University, Instructor
FREY, PAIL, R. P., B.A., Montana State University, Graduate Assistant (Autumn Quarter)
TIMMONS, GORDON D., M.S., Montana State College, Graduate Assistant (Spring Quarter)
WAGNER, JEROME R., B.A., Montana State University, Graduate Assistant

English
COONROOD, ROBERT W., Ph.D., Stanford University, Chairman; Dean, College of Arts and Sciences; Director, Summer Session
ALLEN, JAMES D., Ph.D., University of Washington, Instructor
BERKEY, SEYMOUR, Ph.D., Harvard University, Professor (on leave 1962-63)
BESKE, JESSE, Ph.D., Princeton University, Associate Professor
BONES, ARNOLDS, V., Ph.D., University of Minnesota, Associate Professor
BOWDEN, JAMES H., M.A., University of Louisville, Instructor
BROWN, WALTER L., Ph.D., University of California, Professor
CARPENTER, NANCY C., Ph.D., Yale University, Professor

OFFICIAL DIRECTORY, 1962 - 1963
4—OFFICIAL DIRECTORY

CLAPP, MARY B. (MRS.), M.A., University of North Dakota, Associate Professor Emeritus

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COLEMAN, RUFUS A., Ph.D., Boston University, Professor Emeritus

DUNN, JUDITH, Ph.D., University of Wisconsin, Assistant Professor

FIDLER, LESLIE A., Ph.D., University of Wisconsin, Professor

FREEMAN, EDMUND L., M.A., Northwestern University, Professor Emeritus

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HARRIS, PHYLLIS L. (MRS.), M.A., Montana State University, Instructor

KEE, WALTER N., Ph.D., Yale University, Associate Professor

MCLEOD, DONALD B., M.A., Montana State University, Instructor

MERRIAM, HAROLD G., Ph.D., Columbia University, Professor Emeritus

MOORE, JOHN E., M.A., University of Michigan, Professor

RICHARD, JEROME M., M.A., San Francisco State College, Instructor

ROBERTS, DEXTER M., B.A., Colgate University, Instructor

VINOCUR, JACOB, Ph.D., University of Wisconsin, Associate Professor

WINTERGOLD, W. ROSS, B.S., Utah State University, Instructor

ZUCK, LOUIS, M.A., University of Michigan, Instructor

CLEARMAN, MARY B. (MRS.), B.A., Montana State University, Graduate Assistant

FARLEY, LELAND W., Graduate Assistant

HIGHAM, NANN (MRS.), B.A., Montana State University, Graduate Assistant

MOBIART, LUANN R. (MRS.), B.A., Montana State University, Graduate Assistant

Foreign Languages

BURGESS, ROBERT M., Ph.D., University of California at Los Angeles, Professor and Chairman

BENNETT, VELDON J., M.A., Brigham Young University, Instructor

BISHOP, PAUL A., M.A., Oberlin College, Professor Emeritus

BERT, KENNETH C., M.A., State University of Iowa, Instructor

BACK, ROBERT R., M.A., University of Washington, Instructor

DE LESTRANGE, BRUNO, Licence es Lettres, University of Paris, Instructor

EHRLICH, MARGARET H. (MRS.), M.A., Montana State University, Associate Professor

FLIGHTNER, JAMES A., M.A., Montana State University, Instructor

HOFFMAN, RUDOLPH O., M.A., University of Wisconsin, Professor Emeritus

JARDA, HORST, Ph.D., University of Vienna, Assistant Professor

KLUGE, NATALIE (MRS.), Visiting Instructor

LACIUSKICKI, GEORGE (MRS.), Ph.D., Gottingen University (Germany), Assistant Professor

LAPIK, PETER P., Ph.D., University of California, Associate Professor

NONNENMACHER, PATRICIA J. (MRS.), M.A., Northwestern University, Instructor (Winter and Spring Quarters)

MEADOW, BARBARA F., M.A., University of Kentucky, Visiting Instructor (on leave January 21-April 16, 1963)

ORTISI, DOMENICO, Ph.D., University of California, Associate Professor

Powell, Ward H., Ph.D., University of Colorado, Associate Professor (on leave Winter Quarter)

SHEPPARD, DOUGLAS C., Ph.D., University of Wisconsin, Associate Professor (on leave 1962-63)

SIOENMAKER, THEODORE H., Ph.D., University of Wisconsin, Professor

SORENSEN, THORA, Ph.D., Mexico National University, Professor

BOHN, DOROTHY R., B.A., College of Great Falls; Graduate Assistant (Autumn and Spring Quarters)

BRETT, CAROL J. (MRS.), B.A., New York State College for Teachers, Albany, Graduate Assistant (Winter Quarter)

KRUGER, ADOLPH H., B.A., Montana State University, Graduate Assistant (Autumn and Winter Quarters)

KUENZL, MARILYN (MRS.), B.A., Montana State University, Assistant Professor (Winter Quarter)

WEIGHT, DOLORES D. (MRS.), B.A., Montana State University, Graduate Assistant

Geography

BEATY, CHESTER B., Ph.D., University of California, Assistant Professor and Chairman

HANSEN, AXEL E., M.S., University of Wisconsin, Instructor

MOSBY, SOUTHWORTH M., M.S., University of Wisconsin, Instructor

Health, Physical Education and Athletics

SCHWANK, WALTER C., Ph.D., State University of Iowa, Director and Professor

ADAMS, HARRY F., M.S., University of Washington, Professor; Head Track Coach

ADKINS, JUDY B., B.S., Texas Woman's University, Instructor

CHINISER, EDWARD S., B.A., Montana State University, Assistant Professor

CROSS, GEORGE W., M.S., Indiana University, Assistant Professor

DAHLBERG, GEORGE P., B.A., Montana State University, Professor

DAVIDSON, HUGH, B.S., University of Colorado, Instructor; Assistant Football Coach

HERBERT, CHARLES F., M.A., Columbia University, Professor

HORTON, SONDAH, B.S., University of Utah, Instructor

JENKINS, RAY, M.S., University of Colorado, Assistant Professor; Head Football Coach

LORENS, MAVIS M., M.S., University of Washington, Assistant Professor

NORD, ROYALD V., B.S., University of Wisconsin, Instructor; Head Basketball Coach

REINHARDT, NASEBY, B.A., Montana State University, Instructor; Trainer

SCHNEIDER, WILLIAM E., B.A., University of Wisconsin, Professor Emeritus

SCHWENK, MILTON E., M.E., Eastern Washington College of Education, Instructor; Assistant Football Coach

SKINNER, WAYNE E., M.S., South Dakota State College, Assistant Professor

STOVER, FREDERICK A., M.S., Purdue University, Instructor; Head Varsity Swimming Coach; Manager, University Swimming Pools

STOOGDALE, AGNES L., ELD. Stanford University, Professor

SWANSON, HARLAN L., M.S., University of Oregon, Instructor

WILSON, VINCENT, M.A., New York University, Associate Professor

ANDERSON, FLOYD R., B.A., Concordia College, Graduate Assistant

KUSHWA, ANGELINE L., B.A., State University of Iowa, Graduate Assistant

NUSBAUM, E. GALEN, B.A., Pacific Lutheran University, Graduate Assistant

OWEN, GUY M., B.A., William Jewell College, Graduate Assistant

THIEL, BAKY, B.A., Coe College, Graduate Assistant
History

When, Melvin C., Ph.D., State University of Iowa, Professor and Chairman (on leave 1962-63)

Boreen, Morton, Ph.D., Columbia University, Associate Professor and Acting Chairman

Bennett, Edward E., Ph.D., University of Wisconsin, Professor Emeritus

Coonrod, Robert W., Ph.D., Stanford University, Professor; Dean, College of Arts and Sciences; Director of the Summer Session

Hammen, Oscar J., Ph.D., University of Wisconsin, Professor

Karlin, Jules A., Ph.D., University of Minnesota, Professor (also Political Science)

Kilcoyne, Martin, Ph.D., University of Washington, Visiting Lecturer

Kittel, Allan H., Ph.D., Stanford University, Assistant Professor

Miller, J. Earl, Ph.D., University of Illinois, Professor Emeritus

Rader, Benjamin, M.A., Oklahoma State University, Instructor

Snow, Vernon F., Ph.D., University of Wisconsin, Associate Professor

Turrell, Robert T., Ph.D., University of California at Los Angeles, Professor; Director of Museum

Van de Wetering, John E., Ph.D., University of Washington, Assistant Professor

Barnhill, Norris V., B.A., Montana State University, Graduate Assistant (Autumn Quarter)

Burke, William I., B.A., Montana State University, Graduate Assistant

Craver, Gary A., Graduate Assistant

Dennison, George M., B.A., Montana State University, Graduate Assistant (Winter and Spring Quarters)

Lynch, Robert G., B.S., Western Montana College of Education, Graduate Assistant

McGivern, Edward R., B.A., Carroll College, Graduate Assistant

Home Economics

Edison, Emma H., (Mrs.), M.S., Colorado State University, Associate Professor and Chairman

Chamberlain, D. Gertrude, B.S., University of Alberta, Instructor; Director, Food Service

Ederidge, Fannie E., M.S., Washington State University, Assistant Professor

Garrett, Merle M., E.E., Colorado State University, Instructor

Gleason, Heleen M., A.A., Columbia University, Professor Emeritus

Lewis, Nanette (Mrs.), M.Ed., Montana State University, Assistant Professor

Lyon, Harrett M., (Mrs.), M.S., Iowa State University, Assistant Professor

Platt, Anne C., M.S., University of Washington, Professor Emeritus

Sidwell, Dorothy M. (Mrs.), M.S., University of California, Assistant Professor

Barr, Dorothy D. (Mrs.), B.A., Western Reserve University, Assistant Professor

Fassbinder, Paul, Instructor

Malouf, Arline (Mrs.), B.S., University of Utah, Assistant Professor

Mathematics

Myers, William M., Jr., Ph.D., Ohio State University, Associate Professor and Acting Chairman

Ballard, William R., Ph.D., University of Chicago, Associate Professor

Bingham, Ralph L., M.A., Montana State University, Instructor

Gorowara, Krishna K., Ph.D., University of Delhi (India), Assistant Professor

Hewitt, Gloria C. (Mrs.), Ph.D., University of Washington, Assistant Professor

Kemble, Gerald W., Ph.D., University of California at Los Angeles, Associate Professor; Director, Computer Center (beginning February 1, 1963)

Manis, Merle E., M.A., Montana State University, Instructor

Merritt, A. S., Ph.D. University of Chicago, Professor Emeritus; Vice President Emeritus; Dean Emeritus of the Faculty

Peterson, John A., M.A., Montana State University, Assistant Professor

Reinhart, Howard E., Ph.D., University of Michigan, Associate Professor

Culbertson, Denny D., B.A., University of Minnesota, Graduate Assistant

Joyce, Keith M., B.A., Montana State University, Graduate Assistant

Kopitzke, Edmund R., B.A., Montana State University, Graduate Assistant

Luederke, Allau D., B.A., Montana State University, Graduate Assistant

Sullivan, Hugh D., B.A., Montana State University, Graduate Assistant

Steffin, Robert L., B.A., Doane College, Graduate Assistant

Trickey, George W., B.A., Montana State University, Graduate Assistant

Philosophy

Martin, Edwin L., M.A., Harvard University, Professor and Chairman

Jensen, Henry H., B.A., University of British Columbia, Instructor

Kesten, Fred, M.A., New School for Social Research, Instructor

Lawry, John F., Ph.D., Harvard University, Assistant Professor

Scherer, Cynthia A. (Mrs.), Ph.D., University of California at Los Angeles, Associate Professor

Physics

Jeppesen, C. Kulon, Ph.D., University of California, Professor and Chairman

Hayden, Richard J., Ph.D., University of Chicago, Professor

Jakobson, Mark J., Ph.D., University of California, Professor

Jeppesen, Randolph H., M.S., University of Illinois, Instructor

Shallenberger, G. D., Ph.D., University of Michigan, Professor Emeritus

Dulmage, Harlan D., B.S., Northwestern University, Graduate Assistant

Political Science

Payne, Thomas, Ph.D., University of Chicago, Professor and Chairman

Abbot, Frank C., Ph.D., Harvard University, Professor; Academic Vice President; Dean of the Graduate School

Gibbons, Gerard A., M.A., Woodstock College, Assistant Professor

Karlin, Jules A., Ph.D., University of Minnesota, Professor (also History)

Kierschull, Harvey C., Ph.D., University of Illinois, Assistant Professor

Waldron, Ellis L., Ph.D., University of Wisconsin, Professor

Boatman, George L., B.A., Carroll College, Graduate Assistant

Gravette, Sharon L., B.A., Montana State University, Graduate Assistant

Hoyle, Burton A., B.A., Montana State University, Graduate Assistant

Loring, Emilie S. (Mrs.), B.A., Swarthmore College, Assistant Professor

Psychology

Griffiths, William J., Jr., Ph.D., University of Cincinnati, Professor and Chairman

Ammons, R. B., Ph.D., State University of Iowa, Professor

Atkinson, E. A., M.A., Montana State University, Professor

Boggs, Thomas C., Ph.D., University of Minnesota, Associate Professor

Clow, Maureen, Ph.D., Stanford University, Professor; Associate Dean of Students

DuMas, Frank M., Ph.D., University of Texas, Professor

Miller, Arnold, Ph.D., Clark University, Assistant Professor

Noble, Clyde E., Ph.D., State University of Iowa, Professor

Saffensfield, Bert R., Ph.D., New York University, Professor

Baker, Blaine L., B.A., Montana State University, Graduate Assistant

Baer, Joanne M., B.S., University of Wisconsin, Graduate Assistant

Baer, Robert, B.A., Montana State University, Graduate Assistant

Benson, Emery, B.A., Montana State University, Graduate Assistant

Leuthold, Betty L., B.A., Montana State University, Graduate Assistant
### 6—OFFICIAL DIRECTORY

**McLaughlin, Mary, B.A., Dakota Wesleyan University, Graduate Assistant**

**Sjoberg, Frank H., B.A., Western Washington State College, Graduate Assistant**

**Reserve Officers Training Corps**

**Air Science**

**Veld, Robert L., Lieutenant Colonel, USAF, M.A., University of Colorado, Professor and Chairman**

**Emmer, Meble W., Captain, USAF, B.S., Montana School of Mines, Assistant Professor**

**Gannett, Willard L., Captain, USAF, M.S., Springfield College, Assistant Professor**

**McCollor, Roselyn C., Major, USAF, B.E., University of Minnesota, Associate Professor**

**Baldwin, John (A/IC), Assistant**

**Lesback, Raymon (M/Sgt.), Assistant**

**Maas, Albert H. (T/Sgt.), Assistant**

**Walden, Edward (S/Sgt.), Assistant**

**Military Science (Army)**

**Moucha, M. F., Colonel, U.S. Army, B.S., U.S. Military Academy, Professor and Chairman**

**Cannon, Max E., Captain, U.S. Army, Assistant Professor (Beginning February 18, 1963)**

**Fox, Donald C., Major, U.S. Army, B.E., University of Omaha, Associate Professor**

**MacDonalds, Anges, Captain, U.S. Army, B.S., Texas A & M College, Assistant Professor**

**Pedersen, Alfred L., Captain, U.S. Army, B.S., Wagner College, Assistant Professor**

**Stone, Hardy R., Captain, U.S. Army, B.S., Mississippi State University, Assistant Professor**

**Allen, Charles G. (S/Sgt.), Assistant**

**French, Wallace D. (S/Sgt.), Assistant**

**Shurz, Duane E. (S/Sgt.), Assistant**

**Simpson, Loren E. (M/Sgt.), Assistant**

**Sociology, Anthropology, and Social Welfare**

**Browder, W. Gordon, Ph.D., University of North Carolina, Professor and Chairman**

**Dwyer, Robert J., Ph.D., University of Missouri, Associate Professor**

**Evans, Ibris W., Ph.D., University of Texas, Assistant Professor; Administrative Assistant to Dean, College of Arts and Sciences, and to Director of Summer Session**

**Gold, Raymond L., Ph.D., University of Chicago, Associate Professor**

**Griff, Mason, Ph.D., University of Chicago, Assistant Professor**

**Heinrich, Albert C., M.Ed., University of Alaska, Instructor**

**Malouf, Carlin I., Ph.D., Columbia University, Associate Professor**

**Swift, John L., M.S., Boston University, Lecturer (Courtesy)**

**Tischler, Harold, Ph.D., University of Illinois, Professor**

**Taylor, Dee C., Ph.D. University of Michigan, Associate Professor**

**Bolin, Twila K., B.A., Montana State University, Graduate Assistant**

**Cara-Maia, Glenn A., B.A., Montana State University, Graduate Assistant**

**Hardy, Mabelle G. (MRS), B.A., Montana State University, Graduate Assistant**

**Leonard, Anne (MRS), B.A., University of Texas, Graduate Assistant**

**Simpson, Anne, B.A., Montana State University, Graduate Assistant**

**Zeker, Edvin F., B.A., Yankton College, Assistant**

**Speech**

**McGinnis, Ralph Y., Ph.D., University of Denver, Professor and Chairman**

**Borhhmers, Richard M., Ph.D., State University of Iowa, Associate Professor, Speech Pathology and Audiology**

**Emery, Forrest L., Ph.D., State University of Iowa, Associate Professor**

**Hansen, Bert, M.A., University of Washington, Professor**

**McGuire, Jesse B., M.A., University of Washington, Assistant Professor of Speech Pathology and Audiology (Winter and Spring Quarters)**

**Owen, James, M.A., University of Denver, Instructor**

**Parker, Charles D., Ph.D., State University of Iowa, Associate Professor of Speech Pathology and Audiology; Director, Speech and Hearing Clinic**

**Smith, Robert G., Ph.D., University of Minnesota, Assistant Professor**

**Witt, Daniel M., M.A., University of Denver, Instructor**

**Bashart, John R., B.A., Montana State University, Graduate Assistant**

**Behan, Darlyne J. (MRS), B.A., University of Denver, Graduate Assistant (Winter and Spring Quarters)**

**Diederich, Mary M., M.A., Montana State University, Assistant, Speech Pathology and Audiology**

**Ewing, Charlotte (MRS), B.S., Montana State College, Graduate Assistant (Autumn and Winter Quarters)**

**Hare, Richard B.A., Montana State University, Graduate Assistant**

**Pettersen, Duane D., B.S., Eastern Montana College of Education, Graduate Assistant**

**Zoology**

**Weing, Philip L., Ph.D., University of Wisconsin, Professor and Chairman**

**Bartfeselmez, George W., Ph.D., University of Chicago, Guest Investigator (Courtesy)**

**Browman, Ludwig G., Ph.D., University of Chicago, Professor**

**Brunson, Royal B., Ph.D., University of Michigan, Professor**

**Craighead, John J., Ph.D., University of Michigan, Professor (also Forestry); Leader, Montana Cooperative Wildlife Research Unit**

**Froschesner, Richard C., Ph.D., Iowa State University, Associate Professor**

**Graves, Lynne E., Ph.D., The Ohio State University, Assistant Professor**

**Hoffmann, Robert S., Ph.D., University of California, Associate Professor (on leave, effective May 1, 1963)**

**Holmes, John C., Ph.D., Rice University, Visiting Lecturer (Beginning May 1, 1963)**

**Pfeffer, E. W., Ph.D., University of California, Assistant Professor**

**Philip, Cornelius E., Ph.D., University of Minnesota; Sc.D. (hon.), University of Nebraska, Lecturer (Courtesy)**

**Sengel, Clyde M., Ph.D., Utah State University, Assistant Professor**

**Weisel, George F., Ph.D., University of California at Los Angeles, Professor**

**Choate, Thomas S., M.A., Montana State University, Graduate Fellow**

**Eaton, Alden W., B.A., University of New Hampshire, Graduate Assistant**

**Mead, Rodney A., M.A., University of California at Davis, Graduate Fellow**

**Rauscher, James L., B.S., University of Wisconsin, Milwaukee, Graduate Assistant (Autumn Quarter)**

**Roberts, Stella E. (MRS), B.S., Montana State College, Graduate Assistant (Winter Quarter)**

**Roney, Earnest E., B.A., Bowdoin College, Graduate Assistant**

**Sullivan, John O., M.S., Utah State University, Graduate Assistant (Spring Quarter)**

**Verheg, Nicolaas A., B.S., University of British Columbia, Graduate Assistant**

**SCHOOL OF BUSINESS ADMINISTRATION**

**Blomgren, Paul E., D.B.A., Indiana University, Dean and Professor; Director, Bureau of Business and Economic Research**

**Barth, Glenn R., M.B.A., Harvard University, Assistant Professor**

**Cubbage, Kenneth W., M.B.A., University of Washington, C.P.A. (Wash.), Assistant Professor**

**Dombrowski, Jack R., B.A., Montana State University, C.P.A. (Mont.), Instructor (part time)**

**Emmich, Donald J., Ph.D., Columbia University, C.P.A. (Mont.), Professor**

**Erion, Gene L., Ph.D., University of Wisconsin, Associate Professor**

**Harig, Robert C., Ph.D., Indiana University, Assistant Professor**

**Helsing, Albert T., Ph.D., Johns Hopkins University, Professor**

**Henningsen, Frederick A., M.A., Montana State University, C.P.A. (Mont.), Assistant Professor**

**Kenney, Jack J., Ph.D., Ohio State University, C.P.A. (Mont.), Professor (on leave 1962-63)**
SCHOOL OF EDUCATION

CARLETON, LINUS J., Ed.D., University of Oregon, Dean and Professor
AMES, WALTER R., Ph.D., University of Wisconsin, Professor Emeritus

COLBY, EDMUND K., Ed.S., Indiana University, Assistant Professor; Director, Audio-Visual Centralized Services

GEBHART, JAMES W., Ph.D., Ohio State University, Associate Professor (also Biology) (on leave 1962-63)

GORMAN, ROBERT E., Ed.D., Indiana University, Associate Professor; Director, Counseling Center

GROOM, IRVINE D., M.A., State University of Iowa: M.A. (L.S.), George Peabody College for Teachers, Assistant Professor

HARPER, AARON W., Ed.D., University of Colorado, Associate Professor

JAY, ROBERT H., Ed.D., University of Oregon, Assistant Professor

LOTZ, KENNETH V., Ed.D., Harvard University, Professor (on leave Spring Quarter)

MAIDOCK, WILLIAM E., M.A., Stanford University, Professor Emeritus

MATTIL, CHARLES R., M.Ed., Montana State University, Assistant Professor Emeritus

MILLS, GEORGE H., Ed.D., University of Illinois, Associate Professor

MUNNO, JAMES J. R., D.Ed., University of Washington, Assistant Professor

RISER, HARLAN C., Ed.D., Montana State University, Assistant Professor Emeritus

SLEETEN, VERNON O., Ed.D., University of Oregon, Professor; Director, Education Research and Service

SMITH, LEO, M.A., University of Washington, Professor; Registrar

SOLBERG, RICHARD A., Ph.D., University of California at Los Angeles, Assistant Professor (also Botany): Acting Director, Biological Station

VAN HOREN, GEORGE T. (Mrs.), M.A., University of Wisconsin, Assistant Professor

HOLMES, FRANCIS T., M.A., University of Wisconsin, Professor Emeritus

WATSON, FRANK A., M.A., Northwestern University, Associate Professor

AUSTIN, DOUGLAS E., M.A., Montana State University, Graduate Assistant

BACON, GORDON D., B.E., Montana State University, Graduate Assistant

CONSTANS, H. P., M.E., University of North Dakota, Graduate Fellow

JENSEN, CLARENCE G., M.S., Brigham Young University, Graduate Fellow

JESKA, ALLEN E., Graduate Assistant

MACK, EUGENE A., B.A., Carroll College, Graduate Assistant

THE SCHOOL OF FINE ARTS

BOLEN, CHARLES W., Ph.D., Indiana University, Dean

ART

HOOK, WALTER, M.A., University of New Mexico, Professor and Chairman

ARNOLD, ADEN F., M.A., State University of Iowa, Professor

AUTIO, A. RUDY, M.F.A., Washington State University, Assistant Professor (on leave Spring Quarter)

BLACKMER, MAXINE (Mrs.), M.A., Montana State University, Instructor (part time)

DUEW, JAMES E., M.A., Oberlin College, Associate Professor

LEEY, JAMES A. M., Michigan State University, Assistant Professor

TAKEMOTO, HEINZ, M.F.A., Los Angeles County Art Institute, Visiting Lecturer (Spring Quarter)

EIKENSTROM, ROY A., B.A., Montana State University, Graduate Assistant

MEYER, DEAN, B.S., Northern State Teachers College, South Dakota, Graduate Assistant

NEITZEL, HERBERT F., B.A., Idaho State College, Graduate Assistant

Drama

BROWN, FERMAN H., Jr., Ph.D., University of Wisconsin, Assistant Professor and Chairman

BARKER, DOUGLAS H., Ph.D., University of Washington, Associate Professor

JAMES, RICHARD H., M.A., Northwestern University, Instructor

DEBOUQ, ROGER G., B.S., Eastern Montana College of Education, Graduate Assistant

Music

OAKLAND, LLOYD C., M.MUS., Northwestern University, D.Mus. (hon.), Cornell College, Professor and Chairman

ANDER, EUGENE M., University of Washington, Professor

BOLE, CHARLES W., Ph.D., Indiana University, Professor; Dean of Fine Arts

CITTELLI, CAROL D., M.M., Eastman School of Music, Instructor

DOTT, GERALD H., Ed.D., Indiana University, Associate Professor (on leave Winter Quarter)

EVERS, JAMES A., M.MUS., College-Central Conservatory of Music of Cincinnat, Assistant Professor

HERBER, HAROLD H., M.MUS., Eastman School of Music, Instructor

HEVENTER, MURIEL J., M.MUS., College-Central Conservatory of Music of Cincinnat, Instructor

HUMMEL, J. GEORGE, M.A., Columbia University, Associate Professor

JOHNSTON, DONALD O., Ph.D., Eastman School of Music, Assistant Professor

LESTER, JOHN L., B.MUS., Southwestern University, Professor

LEWIS, GEORGE D., M.MUS., Montana State University, Assistant Professor

MANNING, WILLIAM M., M.MUS., Drake University, Assistant Professor

MUSULLA, JOSEPH A., M.MUS., Northwestern University, Assistant Professor

PERRY, LAURENCE B., M.MUS., Syracuse University, Instructor

RAMSKILL, BERNICE B. (Mrs.), Associate Professor Emeritus

REYNOLDS, FLORENCE M., M.MUS., Eastman School of Music, Associate Professor (on leave 1962-63)

RICHARDS, WILLIAM H., M.D.A., University of Kansas City, Assistant Professor

RICKMAN, LUTHER A., Ed.D., University of Cincinnati, D.Mus. (hon.), College-Central Conservatory of Music of Cincinnati, Professor

WEBER, EUGENE, B.MUS., Yale University, Professor

WENDT, RUDOLPH, M.MUS., Eastman School of Music, Professor

GUTHRIE, RICHARD A., B.MUS., Montana State University, Graduate Assistant

HARTFELDER, GENE, B.A., Ripon College, Graduate Assistant

SIMONSEN, LAURA, B.MUS., Houghton College, Graduate Assistant

STRECKLAND, DALE H., B.A., Washington State University, Graduate Assistant

SCHOOL OF FORESTRY

BOLLE, ARNOLD W., D.P.A., Harvard University, Dean and Professor; Director of Montana Forest and Conservation Experiment Station

BLAKE, GEORGE M., M.S., University of Minnesota, Instructor

CRAGHAD, JOHN J., Ph.D., University of Michigan, Professor (also Zoology); Leader, Montana Cooperative Wildlife Research Unit

FAUZI, JAMES L., M.F., University of Washington, Assistant Professor

GIBBS, FREDERICK L., M.F., Montana State University, Assistant Professor

GIBSON, WILLIAM K., M.F., Montana State University, Instructor

HAIGES, MANFRED L., B.S., Montana State University, Instructor

EIKENSTROM, ROY A., B.A., Montana State University, Graduate Assistant

MEYER, DEAN, B.S., Northern State Teachers College, South Dakota, Graduate Assistant

NEITZEL, HERBERT F., B.A., Idaho State College, Graduate Assistant

Drama

BROWN, FERMAN H., Jr., Ph.D., University of Wisconsin, Assistant Professor and Chairman

BARKER, DOUGLAS H., Ph.D., University of Washington, Associate Professor

JAMES, RICHARD H., M.A., Northwestern University, Instructor

DeBOUQ, ROGER G., B.S., Eastern Montana College of Education, Graduate Assistant

Music

OAKLAND, LLOYD C., M.MUS., Northwestern University, D.Mus. (hon.), Cornell College, Professor and Chairman

ANDER, EUGENE M., University of Washington, Professor

BOLE, CHARLES W., Ph.D., Indiana University, Professor; Dean of Fine Arts

CITTELLI, CAROL D., M.M., Eastman School of Music, Instructor

DOTT, GERALD H., Ed.D., Indiana University, Associate Professor (on leave Winter Quarter)

EVERS, JAMES A., M.MUS., College-Central Conservatory of Music of Cincinnat, Assistant Professor

HERBER, HAROLD H., M.MUS., Eastman School of Music, Instructor

HEVENTER, MURIEL J., M.MUS., College-Central Conservatory of Music of Cincinnat, Instructor

HUMMEL, J. GEORGE, M.A., Columbia University, Associate Professor

JOHNSTON, DONALD O., Ph.D., Eastman School of Music, Assistant Professor

LESTER, JOHN L., B.MUS., Southwestern University, Professor

LEWIS, GEORGE D., M.MUS., Montana State University, Assistant Professor

MANNING, WILLIAM M., M.MUS., Drake University, Assistant Professor

MUSULLA, JOSEPH A., M.MUS., Northwestern University, Assistant Professor

PERRY, LAURENCE B., M.MUS., Syracuse University, Instructor

RAMSKILL, BERNICE B. (Mrs.), Associate Professor Emeritus

REYNOLDS, FLORENCE M., M.MUS., Eastman School of Music, Associate Professor (on leave 1962-63)

RICHARDS, WILLIAM H., M.D.A., University of Kansas City, Assistant Professor

RICKMAN, LUTHER A., Ed.D., University of Cincinnati, D.Mus. (hon.), College-Central Conservatory of Music of Cincinnati, Professor

WEBER, EUGENE, B.MUS., Yale University, Professor

WENDT, RUDOLPH, M.MUS., Eastman School of Music, Professor

GUTHRIE, RICHARD A., B.MUS., Montana State University, Graduate Assistant

HARTFELDER, GENE, B.A., Ripon College, Graduate Assistant

SIMONSEN, LAURA, B.MUS., Houghton College, Graduate Assistant

STRECKLAND, DALE H., B.A., Washington State University, Graduate Assistant

SCHOOL OF FORESTRY

BOLLE, ARNOLD W., D.P.A., Harvard University, Dean and Professor; Director of Montana Forest and Conservation Experiment Station

BLAKE, GEORGE M., M.S., University of Minnesota, Instructor

CRAGHAD, JOHN J., Ph.D., University of Michigan, Professor (also Zoology); Leader, Montana Cooperative Wildlife Research Unit

FAUZI, JAMES L., M.F., University of Washington, Assistant Professor

GIBBS, FREDERICK L., M.F., Montana State University, Assistant Professor

GIBSON, WILLIAM K., M.F., Montana State University, Instructor

HAIGES, MANFRED L., B.S., Montana State University, Instructor
Host, John R., M.F., University of Washington, Assistant Professor (on leave 1962-63)
Krieb, John P., Ph.D., Yale University, Professor
Lang, Robert W., M.F., Colorado State University, Assistant Professor
Linthicum, V. T., Special Lecturer (Part Time) (Spring Quarter)
Mimbau, Lawrence C., Ph.D., Oregon State University, Assistant Professor
Morice, Melvin M., S.M., Colorado State University, Professor
Nimlos, Thomas J., Ph.D., University of Wisconsin, Assistant Professor
Pierce, William R., Ph.D., University of Washington, Associate Professor
Robinson, John P., B.S., Montana State University, Special Lecturer (Part Time) (Spring Quarter)
Steele, Robert W., M.F., University of Michigan, Assistant Professor
Taber, Richard D., Ph.D., University of California, Assistant Professor
Williams, Ross, M.F., Yale University, Dean and Professor Emeritus: Director Emeritus, Forest and Conservation Experiment Station
Carlson, Tony C., B.S.F., Montana State University, Graduate Assistant
Cutter, James F., B.S.F., Montana State University, Assistant Professor

SCHOOL OF JOURNALISM
Blumberg, Nathan B., Ph.D., Oxford University, Dean and Professor
Brown, Warren J., Ph.D., State University of Iowa, Associate Professor
Coggswell, Andrew C., M.A., University of Minnesota, Professor; Dean of Students
Dungan, Edward E., M.A., University of Missouri, Professor
Hess, Philip J., M.A., State University of Iowa, Assistant Professor; Acting Director, Radio-Television Studios
Johnson, Dorothy M., B.A., Montana State University, Assistant Professor (part time)
Mullendore, William M., S.M., Columbia University, Assistant Professor
Maddux, Ray S., Jr., B.A., Montana State University, Graduate Assistant
Richards, Ronald P., B.A., Montana State University, Assistant
Rollins, Judith B., B.A., Montana State University, Graduate Assistant

SCHOOL OF LAW
Sullivan, Robert E., LL.B., University of Notre Dame, Dean and Professor
Brodie, Edwin W., LL.M., Harvard University, Professor
Cromwell, Gardner, S.J.D., University of Michigan, Associate Professor
Elison, Larry M., S.J.D., University of Michigan, Assistant Professor
Houghton, Rodney M., M.A. (L.S.) University of Denver; LL.B., University of San Francisco, Assistant Professor; Law Librarian
Leaphart, Charles W., S.J.D., Harvard University, Dean Emeritus; Professor Emeritus
Lorr, Sherman V., LL.M., Harvard University, Assistant Professor (part time)
Mason, David R., S.J.D., Harvard University, Dicken Professor
Ruskoff, Lester R., LL.M., University of Michigan, Professor
Smith, Russell E., LL.B., Montana State University, Assistant Professor (part time) (Fall Semester)
Stone, Albert W., LL.B., Duke University, Professor
Toelle, J. Howard, LL.M., Harvard University, Professor Emeritus
Anderson, Robert G., B.A., Montana State University, Assistant
Foster, Stephen H., B.S., Montana State College, Assistant

SCHOOL OF PHARMACY
Van Horne, Robert L., Ph.D., State University of Iowa, Dean and Professor
Bryan, Gordon H., Ph.D., University of Maryland, Professor
Cantam, Donald H., Ph.D., University of Wisconsin, Assistant Professor (Winter and Spring Quarters)
Molle, Charles E., M.S., University of Kansas, Professor Emeritus
Petitp, Frank A., Ph.D., University of Washington, Assistant Professor
S-digit, John F., Ph.D., University of Colorado, Professor Emeritus
Wales, John L., Ph.D., University of Colorado, Professor

AFFILIATED SCHOOL OF RELIGION
Tatsugami, Yoshimi, Th.D., Boston University, Assistant Professor and Director
Anderson, James, M.A., Columbia University, Visiting Lecturer (Winter Quarter)

SERVICES
Library
Campbell, Kathleen M., University of Denver, Librarian (Professor) (on leave Autumn Quarter)
Brewer, Mark M., (Mrs.), B.A., Montana State University, Reference Librarian (Assistant Professor)
Delano, Mary F., (Mrs.), B.S., in L.S., University of Washington, Catalog Librarian (Assistant Professor)
Diet, Adeline S., (Mrs.), B.A., Montana State University, Assistant Catalog Librarian (Instructor)
Mills, Douglas E., M.A., B.S., University of California, Acquisitions Librarian: Head, Technical Processes Department (Assistant Professor)

Nelson, Rita (Mrs.): B.A., Montana State University, Assistant Acquisitions Librarian (Assistant Professor)
Spee, Lucile E., M.A., University of Chicago, Documents Librarian (Professor)
White, M. Catherine, M.A., Montana State University, Assistant Librarian and Reference Librarian Emeritus (Professor Emeritus)

Bureau of Business and Economic Research
Blomgren, Paul B., D.B.A., Indiana University, Director; Dean and Professor, Business Administration
Johnson, Maxine C. (Mrs.), B.A., Montana State University, Assistant Director and Research Associate
Bragg, Patricia P. (Mrs.), Assistant (Winter and Spring Quarters)

Biological Station
Solberg, Richard A., Ph.D., University of California at Los Angeles, Acting Director, Assistant Professor, Botany and Education
Harvey, Leroy H., Ph.D., University of Michigan, Assistant Director; Professor of Botany

Staff of Botany and Zoology Departments

Forest and Conservation Experiment Station
Bolle, Arnold W., D.P.A., Harvard University, Director; Dean and Professor of Forestry
Baldwin, Don, B.S.F., University of Minnesota, Superintendent, Tree Nursery; Supervisor, School Forest
Cooney, Robert F., B.S.F., Montana State University, Research Associate (Courtesy)

Staff of Forestry School
Connor, Ralph M., B.S., Montana State University, Research Fellow (Winter and Spring Quarters)
Le Page, Martin D., B.S., Montana State University, Research Fellow (Spring Quarter)
Moorehouse, James A., B.S.F., Montana State University, Research Fellow (Autumn Quarter)
Reed, Lloyd L., B.S.F., Montana State University, Research Fellow (Autumn and Winter Quarters)

Wildlife Research Unit
Craighead, John J., Ph.D., University of Michigan, Leader; Professor, Forestry and Zoology
Craighead, Frank C., Ph.D., University of Michigan, Research Associate

Cooney, Robert F., B.S.F., Montana State University, Unit Staff member; Research Associate, Forest and Conservation Experiment Station (Courtesy)
Hoffmann, Robert S., Ph.D., University of California, Unit Staff member; Associate Professor, Zoology

Pensley, W., Leslie, Ph.D., Utah State University, Lecturer
Seners, Clyde M., Ph.D., Utah State University, Unit staff member; Assistant Professor, Zoology
Taber, Richard D., Ph.D., University of California, Unit staff member; Associate Professor, Forestry

Wright, Philip L., Ph.D., University of Wisconsin, Unit staff member; Professor, Zoology

Woodward, Wesley R., M.S., Montana State University, Admin. Asst. Leader, Montana Cooperative Wildlife Research Unit, Montana Fish and Game Department; Research Associate, Forestry and Zoology (Courtesy)

Extension and Public Service
Crowder, Troy F., M.A., State University of Iowa, Director; Assistant to the President (Assistant Professor)
Publications and News Service
RYAN, JACK, B.A., Montana State University, Director; Distribution Manager, University Press

Counseling Center
GORMAN, ROBERT E., Ed.D., Indiana University, Director; Associate Professor, Education
PAUL, WILLIAM J., B.A., Montana State University, Graduate Assistant
TARRANT, WILLIAM C., B.A., Western Montana College of Education, Graduate Assistant

Alumni Office
HIGHAM, ROBERT J., B.A., Montana State University; Executive Secretary, Alumni Association

Audio-Visual Centralized Services
COLBY, EDMUND K., Ed.S., Indiana University, Director; Assistant Professor, Education

Residence Halls
BROWN, JAMES A., M.S., Colorado State University, Director
CHAMBERLAIN, D. GEORGE, B.S., University of Alberta, Director, Food Service; Instructor, Home Economics

Family Housing
LARSON, KEITH T., B.A., Montana State University, Manager

Miscellaneous Administration
ANDERSON, HOMER E., M.A., Montana State University, Director of Admissions (Instructor)
ARMSEY, LUCILLE JAMESON (Mrs.), B.A., Montana State University, Secretary to the President (Assistant Professor)
FERGUSON, MARY ELROD (Mrs.), M.A., Columbia University, Assistant Director Emeritus, Museum and Northwest Historical Collection (Assistant Professor Emeritus)
HANSEN, ROGER W., M.D., University of Illinois, Director, Health Service (part time)
KREZER, FREDERICK W., B.S., University of Colorado, Superintendent, Buildings and Grounds
LOMASON, EMMA D. (Mrs.), M.A., Montana State University, Assistant Registrar (Instructor)
MARTELL, EARL W., B.A., Montana State University, Director, Student Activity Facilities; Athletic Manager (Instructor)
MUSE, MARVIN L., B.A., Montana State University, Controller
SWEARINGEN, T. G., B.A., Montana State University, Director, Planning and Construction
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 40,500 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.

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

SUPPORT AND ENDOWMENT—Federal land grants made available during territorial days were allocated to 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, ex-officio Regents of the University of Montana. There is also a local three-member Executive Board for each institution. The administration of each institution is vested in a president.

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

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.

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

The University's program of undergraduate education makes available to the student a fund of knowledge pertaining to the world in which he lives and to the heritage of free men and institutions. It seeks to liberate his intellectual capacities for continued learning and to deepen his awareness of ethical and aesthetic values. These goals it fosters through (1) teaching that stimulates the student and inspires him to continue, on his own, the search for knowledge; (2) a campus environment that sustains the efforts of teachers and students to achieve the basic objectives for which the University exists; and (3) a curriculum that: (a) provides reasonable depth in the several liberal arts disciplines—the biological, physical and social sciences, the arts disciplines—the biological, physical and social sciences, (b) demonstrates, in the liberal education; (c) provides opportunity for development of professional and technical competence as a practitioner in some field of endeavor by focusing knowledge and experience from many fields as it applies to the profession concerned, emphasizing the principles and methods basic to the field through study in areas fundamental to the profession, cultivating needed skills, and inculcating the profession's standards, (d) reveals man's great insights and discoveries of the past and stimulates the individual to seek new insights and discoveries, (e) provides maximum opportunities for each student to develop his individual talents and capacities, and (f) encourages a growing awareness of the significance of ethical values and the personal and social responsibilities of the educated person.

In Law, where education beyond the normal baccalaureate is a prerequisite to professional competence and licensing, advanced professional education is offered.

At Montana State University graduate education, which emphasizes advanced training in the disciplines of research and critical analysis, affords the able student opportunities to advance his knowledge in areas of his interest and competence and extend his unique intellectual qualities; in- crease his potential for significant contribution to man's fund of knowledge; and enlarge his capacity for leadership in scientific or professional service.

The graduate program exploits special advantages of location, faculty interests and qualifications, and facilities. Master’s degrees are offered in most fields, some for terminal purposes and others to lead to more advanced work. Fifth and sixth year programs not involving a degree are offered in some areas. Doctoral programs are offered in a number of selected disciplines.

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), the Forest Nursery (200 acres), and the Experimental Forest (22,000 acres). The physical plant includes thirty-three brick and masonry buildings, 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 on Flathead Lake with buildings for housing and research; the Forest Nursery and the Experimental Forest near the campus; and the Wildlife Research Unit. 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 houses approximately 264,000 volumes in the library building and all other libraries, receives over 1,850 periodical titles, and has a collection of more than 38,000 maps. The library is also a depository for United States government documents.

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 opportunity for research in many fields of Biology.

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

THE BUREAU OF BUSINESS AND ECONOMIC RESEARCH of the School of Business Administration is set up to provide Montana businessmen with the types of statistics useful to them in conducting their businesses; to disseminate information of general interest on the economic and social aspects of the state; and to engage in studies in the areas of economic and social sciences which will make 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 QUARTERLY; 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), George M. Blake (Silviculture), Arnold W. Bulle (Directs a Robert F. Cooney (Research Associate), John P. Krier (Wood Utilization), Robert A. McKinsey (Lubrecht Forest Field Assistant), Lawrence C. Merriam (Recreation), Melvin S. Morris (Range Management), Thomas J. Nimlos (Forest Soils), William R. Pierce (Forest Management), Robert W. Steele (Forest Fire Control), Richard D. Taber (Wildlife 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 water conservation and waterflow regulation; the forest and pasturage for domestic livestock and wildlife; the forest and recreation and those other direct and indirect benefits that may be secured by the maintenance of or the establishment of forests; and 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 purposes of this act; . . . to establish such field experiment stations . . . to accept for and in behalf of the State of Montana, such gifts of land or other donations as may be made."

The station is supported by funds appropriated by the Congress and the State of Montana, income from the sale of forest products, 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 by the Montana Fish and Game Commission, the Fish and Wildlife Service, 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 work carried on under the supervision of the Unit Leader and University Faculty contributes to the training of graduate students in the fields of Wildlife Management and Wildlife Technology.

Graduate work in wildlife may be taken with the area of concentration either in wildlife management or in wildlife technology. It will ordinarily require two years work beyond the Bachelor's Degree to fulfill the requirements for a degree of Master of Science in Wildlife Technology. Contributions 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.

UNIVERSITY MUSEUM contains anthropological, archaeological, art, botanical, geological, historical, and zoological collections. The historical and part of the Indian collections are on display in the Fine Arts Building, while the other collections are housed with the departments most intimately concerned.

The Historical and Indian displays are open to the public from 3:00 to 5:00 o'clock on Mondays through Thursdays and on Sundays from 2:00 to 4:00 o'clock while the University is in session. The other collections may be visited by request to the department concerned.

THE TYPOGRAPHICAL LABORATORY AND UNIVERSITY PRESS serves both as a laboratory operation for instruction in the School of Journalism and to take care of the printing of educational, research, and informational materials of Montana State University.

THE BUREAU OF PRESS AND BROADCASTING RESEARCH undertakes research and service projects as part of the program of the School of Journalism. It is responsible for THE JOURNALISM REVIEW and other publications of value to the press and broadcasting media.

THE DIVISION OF EXTENSION AND PUBLIC SERVICE is the agency through which the University carries on off-campus activities and services. In it are the departments of Home Study, Extension Classes, and the School for Administrative Leadership.

The division works directly with communities and groups in community historical pageant-dramas, community service surveys, institutes, forums, short courses, and conferences.
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. (c) A completed University Health Record Form signed by a qualified physician, and mailed by him directly to the University Health Service.

Applicants other than graduate students should take the AMERICAN COLLEGE TESTING PROGRAM examination, preferably in November or February. The test is also offered in April and May of each year, and in a limited number of summer test centers. After announcement of test centers, and well in advance of examination dates, student information booklets and registration blanks are sent to all high schools. Check with your High School Counselor or Principal. If information is not available, write to the REGISTRAR, Montana State University, Missoula, Montana.

Results of these examinations are used for general advising purposes to assist in identifying students with high college potential who may be seeking scholarships, for placement in English, and as part of the information used to determine non-resident admissions.

New students who do not take the AMERICAN COLLEGE TESTING PROGRAM examination in advance will pay the $4.00 registration fee and take it on campus before they register. A fee of $4.00 is required and this includes administration fee of $15.00.
the American government test, only. The same fee applies for a retest on all five parts of the GED and the American Government examination if taken with the five parts of the GED test. A fee of $1.00 per test is charged for a retest on one or more separate tests of the GED battery, and for retest on the American Government examination (except as noted above). Maximum charge for any re-test period is $4.00. No fee is charged for issuing high school equivalency certificates.

A waiting period of six months is required before applicants may re-take the American Government examination or any part or all of the test of General Educational Development. A waiting period of twelve months is required for any subsequent re-test on the GED tests or the American Government examination.

High School diplomas are not issued on the basis of GED tests, nor are Montana high schools authorized to issue diplomas or certificates on the basis of the General Educational Development Tests.

EARLY ADMISSION may be granted to a limited number of high school students who have completed their junior year, with specific agreement and recommendation of the High School and the University.

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 curricula are offered at these units of the University of Montana; consequently a student who changes his objective either while continuing in an institution or in changing from one institution to another must expect to lose time thereby. Excess credits earned in completing a two-year course of junior college rank may not be used to decrease the two years usually required to complete senior college work at Montana State University. (This paragraph applies only to Montana residents.)

ADVANCED PLACEMENT with college credit may be granted from high schools offering college level courses. Such courses are to be agreed upon in advance by the high school involved and the University. Suitable means of validation by comprehensive examinations will be determined by the University. Advanced placement examinations of the College Entrance Examination Board may be accepted.

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

UNCLASSIFIED STUDENTS. Under certain circumstances, older students, permitted to select courses 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. One day at the beginning of other quarters is 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 may prepare at the University. (3) Various tests to help the student determine University aptitudes and the courses in which he or she will learn most effectively. (4) Social gatherings at which students become acquainted with fellow classmates, students of other classes, and members of the faculty. (5) 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.

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

MAXIMUM CREDIT LOAD. Except for students registering in an approved curriculum, the maximum credit load per quarter is as follows: (1) For Freshmen and Sophomores, 16 credits plus physical education and ROTC as required; (2) Juniors and Seniors may register for 17 credits except that students with approximately B averages may be permitted by their advisers to register for 18 credits.

In addition to those allowed numbers of credits per quarter, freshmen and sophomores may take one additional credit selected from applied or ensemble music, rehearsal and performance, and current affairs. The student must maintain a C average during the previous quarter in residence in order to be permitted to carry this added credit. Pre-college courses in English Composition or Mathematics which carry no credit, count toward the maximum load according to the number of class hours per week.

MINIMUM SCHOLASTIC REQUIREMENTS. Students whose work falls too 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 upon his appeal any student at any time.

CHANGES IN PROGRAM OF STUDIES. To drop or add courses, change from credit to listener or vice versa, the student must secure a Drop-Add card from the Registrar's Office and return it to that office after getting the required signatures. Withdrawal from a course scheduled for a full quarter is permitted during the first five weeks of instruction with a "W" (withdrawal, no credit) and an "F" is assigned if a student drops a course after the fifth week. An "I" is assigned for dropping a 5-week course after the third week and also for any unofficial withdrawal from a class. Changes from credit to listener or vice versa are allowed only within these same time limits. Ordinarily no course may be added after the second week.

WITHDRAWALS FROM THE UNIVERSITY. Students who withdraw from the University during a quarter are required to fill out withdrawal forms in the Registrar's...
Office. If this is not done the student will not be entitled to certification of honorable dismissal and "F" grades are assigned. When withdrawal forms signed by the Dean or Associate Dean of Students are filed before the end of the ninth week of a quarter grades of "W" are assigned. 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 and any credit received are automatically cancelled 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 the quarter. The student cannot obtain a larger number of credits than he is registered for, but a smaller number may be completed and credit obtained with the instructor’s approval.

VETERAN REGISTRATION. Veterans’ subsistence payments from the Veterans’ Administration are based on the number of hours of work for which the student is registered. A minimum of 14 credit hours is required for full payment under the Korean G. I. Bill.

UNIVERSITY EMPLOYEES’ REGISTRATION. With approval of the school dean or departmental chairman and the Academic Vice-President, regular full-time employees of the University may register for programs of not more than 6 credits in a quarter.

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 catalog 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 Sciences
- Botany
- Chemistry
- Economics
- Economics-Political Science
- Economics-Sociology
- English
- French
- Geography
- Geology
- German
- Health and Physical Education
- History
- History-Political Science
- Home Economics
- Latin
- Law
Bachelor of Science, with majors in:
- Health and Physical Education
- Home Economics
- Military Science
  - Bachelor of Science in Medical Technology
  - Bachelor of Science in Secretarial-Home Arts
  - Bachelor of Science in Wildlife Technology

SCHOOL OF FINE ARTS
Bachelor of Arts, with majors in:
- Art
- Drama
- Music
Bachelor of Music, with majors in:
- Applied Music
- Music Education
- Theory or Composition

PROFESSIONAL DEGREES
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 Arts in Radio-Television
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; P—pass without defining grade. The grade I—Incomplete is given if all the work in a course has not been completed and there is sufficient reason for this. An I will be changed to an F if the work is not completed during the student’s next quarter of residence.

In research, thesis, and law courses the letter “I”, 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.

The cumulative grade-point average is computed by dividing total grade points earned to date by the number of hours undertaken, excluding courses in which grades of W, P, I, or N (unfinished continuous course) are received.

REQUIREMENTS FOR GRADUATION
CREDIT HOURS REQUIRED FOR A DEGREE. The work in Montana State University is measured in terms of credit. One credit represents three hours of time per week for one quarter of twelve weeks. The time required for each credit may be distributed in any combination among preparation, recitation, lecture, or laboratory work. A total of 180 credits plus six credits in required physical education is
necessary in all courses for graduation with a bachelor's degree except that more are required in Forestry, Law and Pharmacy. Candidates for the degree of Bachelor of Science in Forestry must complete 192 credits in addition to regular requirements in Physical Education and ROTC. Candidates for the degree of Bachelor of Laws must complete three years of Law totaling 90 semester hours in addition to the entrance requirements of the School of Law. Candidates for the degree of Bachelor of Science in Pharmacy must complete a third year of the major course. Candidates for the Bachelor of Arts degree in the College of Arts and Sciences must complete 93 credits in that college, except that credits in Art and Drama may be included.

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

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

CREDITS REQUIRED FOR A MAJOR. Students may be required to complete from 45 to 60 credits in the chosen field. For degrees in education, 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, Law, Music, or Pharmacy. Exceptions to these regulations may be made on the basis of entrance credits in the Departments of Foreign Languages and Mathematics.

CREDIT LIMITATIONS. 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 toward graduation.

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

Except in the School of Music, not more than 12 credits in applied music (Music 100, 101 thru 403, 151 thru 453, 114 thru 119; 125, 126, 127, 129) nor 6 credits in ensemble music (Music 105 thru 110, and 140) may be counted towards graduation.

Only students majoring in Business Administration, those taking a teaching major or minor in Business Administration or those following the curricula in Secretarial-Home Arts are allowed to present more than 10 credits earned in Business Administration 180-181-182, 183, 184-185-186, 187-188-189 and 190-191.

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

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 determines which, if any, courses within the department may be challenged. The dean of the school or head of the department must approve any arrangements prior to testing for challenge 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 record 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 on a grade of B or better earned in an examination which must be at least in part written.

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

A fee of $3.00 per credit hour is charged. Such examinations are available only to regularly enrolled students.

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

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

(1) Physical Education, 6 consecutive quarters (6 credits) required of all freshmen and sophomore students unless excused for cause. Discharged veterans and students five years of age are excused from this requirement.

(2) All students except those excused for cause are required to pass the University swimming test. Customarily students will pass this test during the 6 quarters of Physical Education. It is recommended that the test be completed by all other students by the end of the sophomore year. Arrangements to take the test must be made with the Department of Health and Physical Education.

(3) ROTC, a total of 6 quarters required of all freshmen and sophomore men citizens of the United States. It is mandatory that this work be accomplished during the first six quarters and cannot be deferred except by petition by 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 who are disenrolled from 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. Proof required in form of a discharge or its equivalent.

Less than six months—None

Six months but less than 12 months—8 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.

(4) Freshman Composition English 101-102-103, 3 quarters (9 credits). All students registering for the first time take a placement examination; those who fail to demonstrate an acceptable college standard must take English 001 without credit before enrolling in English 101. Students who receive "A" in English 102 may substitute English 201 for 103.

Candidates for the advanced professional degree, Bachelor of Laws, who are graduates of an accredited college or university may be excused upon application, of not to exceed 3 quarter credits of English composition.

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 groups I, II and III. Credit earned for Bio Sciences 131-132 will satisfy group I.
Group I. Astronomy (Gen. 100), Botany, Chemistry, Geology, Mathematics, Microbiology, Physics, Zoology; General 131-132-133, or General 131 and 10 credits from other subgroups, or General 131-132 and 5 credits from other sub-groups.

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), part or all of general 151-152-153, Music (123 only), Philosophy, Psychology, Religion.

In the School of Forestry, Group II requirements may be partially satisfied by 5 credits in Forestry 421, and Group III is partially satisfied by 5 credits in Speech.

In the School of Law, students admitted as transfers from other schools with three or more years of pre-legal work from such schools shall be exempted from the group requirements.

Elementary teachers may fulfill Group I requirements with 12 credits from General 151-152-153 Science for Elementary Teachers and Mathematics 130 and 220, Theory of Arithmetic and Intuitive Geometry.

FOREIGN LANGUAGE REQUIREMENT. For the degree of Bachelor of Arts in the College of Arts and Sciences, Bachelor of Arts in the School of Fine Arts, Bachelor of Arts in Business Administration and Bachelor of Arts in Journalism, a knowledge of either a modern or classical foreign language is required. 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 five quarters (25 to 25 credits) in one language at the University, or by three quarters or equivalent in each of two foreign languages. A student is allowed credits toward the fulfillment of the language requirement for high school languages according to the level of attainment on a required placement examination which also indicates the level of the course in which he may continue in the University. Foreign Language placement and reading examinations are given and certified by the Department of Foreign Languages.

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

RESIDENCE REQUIREMENTS. Students who transfer credits earned elsewhere and who take a degree from Montana State University must, in addition to meeting other requirements of the University, earn not less than 45 credits, and devote not less than three quarters to resident study at the University; and 35 of the last 45 credits earned for a degree must be earned in resident study at the University. Extension credits earned on campus count towards residence requirements, but correspondence credits do not.

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

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

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 or both, as determined by the major department or school; (4) he must pass the examination with a grade of "A" or "B"; (5) after these qualifications have been met, the candidate for honors must then receive the recommendations of his major department and of the faculty of Montana State University.

In the School of Law, the index requirements in (1) and (2) are computed on Law credits only, and do not include the undergraduate record.

SUMMER SESSION. The Summer Session consists of two five-week terms and a concurrent ten-week term. Students may attend either five-week term or the full ten-week session. The 1964 Summer Session will open June 15 and close August 21; the first five-week term, June 15 to July 17; the second five-week term, July 20 through August 21.

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

Thirty weeks, including one full 10-week quarter, will satisfy the residence requirements for the Master's degree.

Courses will be offered in all of the basic Arts and Sciences, as well as in the professional areas of Business Administration, Education, and Fine Arts. Both graduate and undergraduate work is offered in most of these areas.

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

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

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.

Full information regarding the Summer Session may be obtained from the Summer Session office, Liberal Arts 101, or from the individual department or school of instruction.

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.
ADMISISON 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 undergraduate work. Three letters of recommendation from persons qualified to judge the applicant's professional potentialities must be submitted in support of applications for admission and for graduate assistantships or fellowships. Application forms may be secured from 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. 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.

Full graduate standing will be granted to students working toward an advanced degree whose applications present a clear promise of satisfactory graduate work, with particular reference to the amount and level of performance in prior academic preparation, possession of a Bachelor's degree from an accredited institution, and satisfactory recommendations.

Provisional graduate standing may be granted to a student whose application shows reasonable prospect for effective graduate work, but whose record reveals substantial deficiencies in the amount or quality of performance in prior academic work, doubtful command of language, negative recommendations, or other uncertain factors. After one quarter or more of satisfactory graduate work a student with provisional graduate status may be advanced to full graduate standing upon recommendation of the major department or school and approval by the Dean of the Graduate School.

Students admitted to the University on probation are not admitted to the Graduate School. With special permission, they may, without receiving graduate credit, take courses to demonstrate capacity for work in a graduate program, or to rectify deficiencies in prior preparation.

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 be 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 apply to staff of the Reserve Officers Training Corps who are on courtesy appointment to the faculty; nor does it prevent members of the faculty from taking advanced courses for credit to be transferred to another institution.

GRADUATE ASSISTANTSHIPS AND FELLOWSHIPS are available in most schools and departments and carry stipends currently ranging from $1,600 to $2,000. They require up to fifteen hours per week of laboratory or teaching assistance, and allow the holder to carry up to twelve credits per quarter. Most fees, including the non-resident fees are remitted. In addition, other fellowships, scholarships, assistantships, and other employment opportunities are available in many departments and schools of the University.

GRADUATE RECORD EXAMINATION. The following schools and departments may require entering graduate students to take the Graduate Record Examination not later than the first quarter of graduate residence: Botany & Microbiology, Business Administration, Chemistry, Economics, Education, English, Foreign Languages, Geography, Geology, Health & Physical Education, History, Journalism, Mathematics, Music, Philosophy, Physics, Political Science, Psychology, Speech, Wildlife Technology, and Zoology.

For the Graduate Record Examination is 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 on which the Business Office 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 receipt stub for admission to the examination, which will be administered at an announced time and place. The examination may be expected at the end of the fifth or sixth week of the autumn quarter and at the end of the fourth week of the summer session.

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 but 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 with approval by the Graduate Council.

COURSE LOAD. Fifteen credits of graduate work in a quarter constitutes the usual graduate registration. The maximum credit load which may be applied toward a graduate 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 of not more than 12 hours in a quarter.

REGISTRATION. At the time of registration for each quarter the student's program must be submitted to the office of Graduate Dean for review as to courses to be taken 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 Council. 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'S DEGREES

The following requirements pertain to all Master's degrees unless specific exceptions or additional requirements are indicated in the curriculum statements of particular schools or departments.
The candidate for a Master's degree must present evidence of intensive study and investigation in his major field or special interest. At least 45 credits of graduate work must be presented, and at least 30 of these credits, including credit for the thesis or professional paper, must be in the student's major department or school. With consent of the graduate adviser and of the Dean of the Graduate School, as much as 15 credits of graduate work may be offered in studies outside the major department or school. Proficient use of the English language is required of all candidates for Master's 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 at least 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 10-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 10 quarter-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 if such transfer is recommended by the school dean or department chairman. Residence requirements for the Master's degree may not be met by transfer except by students from Montana State College, who may transfer a maximum of 15 credits and 10 weeks of residence, on recommendation of the graduate adviser.

ADMISSION TO CANDIDACY. A student whose record during the first two quarters 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. Not later than the second week of the quarter in which the student expects to complete work for the Master's degree, the student must file with the Dean of the Graduate School three copies of an application for admission to candidacy.

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 below. Examinations must be completed at least one week before the Master's degree is to be granted.

THESIS OR PROFESSIONAL PAPER. The subject of the thesis or professional paper must be approved by the thesis director. No more than fifteen credits of thesis (course No. 699) may be applied toward the Master's degree; lesser limits may be specified by individual departments or schools.

By the end of the fifth week of the quarter in which the Master's degree may be conferred the candidate must submit to the Dean of the Graduate School an unbound committee draft of the thesis or professional paper as approved by the thesis director. If approved by the Dean, this committee draft will then be submitted by the candidate to the examining committee for revision prior to final submission and acceptance.

Final acceptance of the thesis or professional paper is subject to approval by an examining committee. The committee will include the thesis director and at least one other member of the faculty of the major department or school nominated by the head of the department or school and appointed by the Dean of the Graduate School. The Dean of the Graduate School will designate at least one faculty member from another department or school to serve as a member of the examining committee, except for students in music with major in applied music or composition, and for the Master of Education degree.

Three unbound copies of the approved thesis or professional paper must be submitted to the Dean of the Graduate School. The candidate will pay the costs of binding, and the thesis or professional paper 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. The abstract is limited to 300 words. No abstract is required for professional papers.

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.

SPECIAL PROGRAMS

In addition to the graduate programs offered by individual departments and schools, the following interdisciplinary degree programs are available:

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 230, Edu 450 and 452, 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 and 360, or 361; Sociology 402 and 405; Edu 454, 455, 552 (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.

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. If the major in Biological Sciences it will comprise one member from Botany and Microbiology, 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, and with a recommendation that 10 of these 17 credits be in allied fields, 8-9 credits in research and thesis, and final oral examination (written examination may be required).
B. Fifty-four graduate credits including a minimum of 35 in the major field, with a recommendation of 10 in allied fields, 9 credits electives, and final oral and written comprehensive examinations.

C. Sixty credits including a minimum of 35 graduate credits in the major field, with a recommendation of 10 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 10 approved 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 after 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 to be established by examinations. 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 department. 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 competency 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. The abstract is limited to 600 words.

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 an examining committee. This committee will include the dissertation director, at least one other member of the faculty of the major department or school and one faculty member from another department or school recommended by the head of the major department and appointed by the Dean of the Graduate School. The Dean of the Graduate School will designate at least one other faculty member from another department or school to serve as a member of the examining committee. The 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.

DISSERTATION. Two copies of the approved dissertation and abstract will be submitted unbound 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.

Upon the award of the doctorate the University will microfilm the dissertation and bind one copy for deposit in the University Library. 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 prior to admission to candidacy, 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 up to one quarter of residence credit for research done in absentia for the dissertation.

COURSE REQUIREMENTS, DISTRIBUTION, AND QUALITY OF WORK. The candidate will submit a minimum of 135 quarter credits of graduate work including 120 credits of approved course work, such work to be exclusive of the doctoral dissertation. For the Ed.D. degree a minimum of 60 credits of graduate work in Education is required. These sixty credits must include the following courses: Methods of Educational Research, Educational Statistics,
Philosophy of Education and, if not taken previously, at least one course in each of the following areas: Guidance, History of Education and Educational Measurement. In addition, the student must offer 15 credits in one field and 9 in each of two other fields selected from the following: Administration and Supervision, Classroom Methods, Curriculum, Educational Psychology, Elementary Education, Guidance, Higher Education, History and Philosophy of Education and Educational Sociology, and Secondary Education.

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 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. The abstract is limited to 600 words. Other dissertation provisions under the Doctor of Philosophy degree above, apply.

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.

FINANCIAL OBLIGATIONS

SUMMARY OF EXPENSES. This does not include fees for special purposes such as Applied Music and Forestry. Autumn quarter fees include a $10.00 deposit which is refundable, less charges.

Married students living in college operated family housing pay rental rates varying from $32.00 to $83.00 a month depending on the size and type of apartment.

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

<table>
<thead>
<tr>
<th>Fees</th>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
<th>Total Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montana Residents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fees</td>
<td>$110.00</td>
<td>$100.00</td>
<td>$100.00</td>
<td>$310.00</td>
</tr>
<tr>
<td>Res. Halls Board</td>
<td>136.00</td>
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<td>Room (Double)</td>
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<tr>
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<td>20.00</td>
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<td>$396.00</td>
<td>$344.00</td>
<td>$344.00</td>
<td>$1,084.00</td>
</tr>
</tbody>
</table>

NON-RESIDENT STUDENTS are those who have not resided in Montana for at least 12 months immediately prior to entering Montana State University and whose parents are not residents of the state. Non-residents may not gain residence while in attendance at any institution of learning. For more information, write to the Registrar.

STUDENT FEES. The following is a detailed schedule of quarterly fees authorized for the college year 1963-64 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 is not complete until all fee charges are paid, or arrangements made, in the Office of the Controller, for extension of the date when due.

ALL STUDENTS REGISTERED FOR SEVEN OR MORE CREDITS:

<table>
<thead>
<tr>
<th>Building</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Service</td>
<td>10.00</td>
</tr>
<tr>
<td>(Required of all students enrolled for class work.)</td>
<td></td>
</tr>
<tr>
<td>General deposit (charges for loss, breakage, and fines deducted)</td>
<td>10.00</td>
</tr>
<tr>
<td>(This deposit, less charges, is refundable after graduation or when schooling is discontinued. Additional amounts will be billed if the balance becomes low.)</td>
<td></td>
</tr>
<tr>
<td>Total, first quarter in attendance</td>
<td>$110.00</td>
</tr>
<tr>
<td>Non-residents (out-of-state) pay, in addition to the fees listed above, per quarter ($90.00 plus $22.50 student M.S.U. Building fee)</td>
<td>$112.50</td>
</tr>
<tr>
<td>(If registered for less than 7 credits, the Non-resident fee is based on a charge of $12.00 per credit, plus an $11.25 student M.S.U. Building fee)</td>
<td></td>
</tr>
</tbody>
</table>

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

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

LIMITED REGISTRANTS (students registered for less than seven credits): Registration Fee $10.00; Incidental Fee $20.00; General Deposit $5.00; Building Fee $7.50; Student M.S.U. Building fee $7.50; Health Service $10.00; Student Activity $16.00 (optional). Non-residents pay (in addition to other fees stated here) $13.00 per credit, plus $11.25 additional M.S.U. Student Building fee. 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. This applies to regularly registered students only.

GRADUATE STUDENTS pay the same fees as undergraduate students except that graduate students whose programs require expensive equipment, laboratory supplies and additional books may be required to pay a graduate laboratory-incidental fee not to exceed $50.00 per quarter. The student activity fee is optional to students who have a B.S. or B.A. degree.

FEES FOR SPECIAL PURPOSES:

LATE REGISTRATION, payable by students who did not register during the period designated for registration, unless their late registration was due to the fault of the University. The fee is also payable by students who register during the prescribed registration period except for payment of fees or securing a deferment. If a bank declines payment of a personal student check and returns it to the University, and such action is due to fault of the student, the fee shall be charged from the date of the check tendered by the student to the University. ($5.00 for the first day, plus $2.00 per day thereafter to a maximum of $15.00.)

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. First week no charge; thereafter $2.00.

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

REMOVAL OF INCOMPLETE. $2.00 per course.

TRANSCRIPT OF RECORD. $1.00 each after the first which is free of charge.

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 Session Bulletin and the Biological Station Bulletin, respectively.

REFUNDS. All fees, except the $10.00 Registration fee, are refunded to students who withdraw before the beginning of classes. No fee refunds are made after the fourth week of instruction (except Music). Students who withdraw after the beginning of classes but before the end of the fourth week will be refunded according to the refund schedule published below.

Applied Music refund is based on a charge of $1.75 per ½ hour lesson for the number of weeks elapsed since the beginning of the quarter.

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.

---WEEK OF INSTRUCTION---

REGULAR STUDENTS

First Year

Second Year

Third Year

Registration

Incidental

Building

Student M.S.U. Building

Student Union Building

Student Activity

Health Service

(No refund if medical service furnished or physical examination taken.)

Non-Resident Tuition ($90.00) 80% 60% 40%

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

REGULAR STUDENTS WHO DROP TO LIMITED REGISTRANTS

Registration

Incidental

Building

Student M.S.U. Building

Student Union Building

Student Activity

Health Service

Non-Resident Tuition

Varies with number of credits

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

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 accepted except in payment of University bills.

RAILWAY FARE REFUND. In accordance with the provisions of Chapter 41 of the Session Laws of 1925, enacted by the Nineteenth Legislative Assembly, and under regulations established by the State Board of Education, railroad fare in excess of fifteen dollars actually paid by any student for a round trip by the most direct route available between 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 suc-
cess, 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.

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 by a health service fee paid by students each quarter, provides medical care for students during the autumn, winter and spring quarters. The plan was developed through a contractual arrangement between the University and the Western Montana Medical Society. A supplemental, but optional, health care program under Montana Blue Cross is available (see below) to students who wish to extend their protection to periods between quarters and through the summer months.

The services under the Student Health Service Plan are comprehensive and are available at a low cost made possible by group participation and infirmary type facilities. They are available, however, only while the student is enrolled for the Autumn, Winter, and Spring quarters. 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, before enrollment, must have submitted a completed University Health Form signed by a qualified physician. During Orientation Week, patch tests will be given new students at the University Health Center.

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.

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 may pay for 15-day hospitalization at $15 per day, and $100 additional cost. Extended hospitalization is provided for under the supplementary Blue Cross plan.

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, nor are medical services for illnesses arising between the Autumn, Winter and Spring quarters. A less extensive plan is in effect during the Summer quarter.

Hospitalization but not medical services as above authorized is covered outside Missoula, in connection with University activities at any place during the school session.

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

Particular services provided by the Health Service, and exclusions, are as specifically mentioned in this agreement between the University and the Western Montana Medical Society.

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

THE OPTIONAL BLUE CROSS SUPPLEMENTAL HEALTH PLAN has been worked out through the Faculty-Student Health Committee to make it possible for students to obtain low-cost year-around health care protection during the four or more years they are undergraduates at Montana State University, and to allow married students health care protection for their dependents. Under this plan which costs the single student $3.00 per quarter for the autumn, winter and spring quarters and $4.50 for the sum mer, the student may protect himself against the costs of illnesses that exceed 15 days per quarter of hospitalization (the limit under the Student Health Service Plan) and illness and accidents occurring between quarters and during the summer months. The married student, under this optional plan, can gain health care protection for his dependents, who cannot be covered under the University plan, at a cost of $16.00 per quarter for the autumn, winter and spring quarters and for the summer period. Details of the plan are available from the Blue Cross headquarters in Great Falls, from the Dean of Students Office and from the University Health Center.

THE SPEECH AND HEARING CLINIC provides needed services to any student desiring it 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 need of University 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 seven 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 Dean or Associate Dean of Students. Upperclass women are required to live in women’s residence halls or with approved student living groups unless excused as special cases by the Associate Dean of Students. Women students over 25 years of age and married women must have the approval of the Associate Dean of Students to live in the residence halls.

RESIDENCE HALLS. Application forms and detailed information may be obtained by writing to the Admissions Office, Montana State University. A $90 prepayment on board and room reservation is required at the time of application. If a room reservation is cancelled, notice in writing must be received by the Manager of Residence Halls on or before September 1 for fall quarter, December 4 for winter quarter, and March 5 for spring quarter. Students who live in the residence halls are required to board in the Lodge. See Residence Halls Bulletin for board and room rates.

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 residents in each hall. This fund is expended for social activities which are planned by the group.

Board is provided in the Lodge for the residents of all halls. Experienced dietitians provide appetizing and nutritionally adequate meals.

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, 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, three and four-bedroom units are available.

THE WOMEN’S COOPERATIVE HOUSE provides an opportunity for women to gain experience in group living while reducing living expenses by sharing in the work of the house. This residence is under supervision of an approved housemother. Information may be obtained by writing to the President, Syndadelphic 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 fraternities and sororities is by invitation, but eligibility for pledging is based on satisfactory scholarship accomplished in high school; and eligibility for initiation is based on satisfactory academic performance in the University. Sorority houses are under the immediate supervision of resident housemothers, who are appointed with the approval of the Associate Dean of Students.

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 room, coffee shop, lounge, recreation room, and food service. Bowling alleys and a swimming pool are also maintained by the Lodge management.

FINANCIAL AIDS. National Defense loans, United Student Aid, and loans from University sources 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. Students applying for Work Scholarships should have a high B or A average in high school. A statement should be addressed to the office of the Dean of Students.

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.

STANDARDS OF STUDENT CONDUCT

Personal honor and self-discipline play a large part in one's success in the University. A record, built during undergraduate years, for moral integrity and personal honor is as important for future success as academic accomplishment. The policy of the University, therefore, is pointed toward student development along both lines.

This policy begins with the assumption that all students coming to the University have common sense and normal conceptions of honor, morality, integrity and respect for order and the rights of others. It also assumes that all students have a respect for the University and regard their attendance here as a privilege and not a right; that, in a sense, each generation of students feels it has a responsible stewardship and desires to leave for future generations of students a University even better in fame and reputation than the one they have known.

Because of these assumptions it is unnecessary to spell out a long list of restrictions and laws that are essential in a less selective community to protect the rights of the responsible from those who are not.

Every student knows that to be personally honorable he cannot lie, cheat, steal, be destructive of public or private property, participate in riotous activity, be guilty of immoral acts or indecency, be inconsiderate of the rights and lives of others or be oblivious to the laws of city, state or nation. Guilt in any of these areas, he knows, is not good citizenship and can result in the withdrawal of his privilege of attending the University.

Consistent with the above, therefore, the University expects all of its students to conform to the usual standards of society and law-abiding citizenship wherever they may be. Every organization affiliated with the University or using its name is expected to conduct all its affairs in a manner creditable to the University. Organizations and individuals will be held to this principle.

In some areas, specific rules have been adopted as guides to student conduct, violations of which are cause for disciplinary action against individuals or groups:

I. USE OF MOTOR VEHICLES of any form on the campus or in the city or county of Missoula for the academic year is denied to the following classifications of undergraduates:

A. Those who have fewer than 40 quarter credits of University work or its equivalent.

B. All other undergraduate students who cannot show an index of 2.0 (C average) on all credits attempted.

C. Minors, who are otherwise qualified, who do not present written permission of their parents for the use of a motor vehicle.

Students living with their parents and commuting to the campus, handicapped students, and those who can qualify as exceptional cases, may petition the Dean of Students for a waiver of A and B above. All students are required to familiarize themselves with the University’s published Motor Vehicle Regulations, violations of many of which call for cancellation of the offender’s enrollment.

II. GAMBLING. Gambling is not permitted in University buildings or in University approved housing.

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

A. By University students, visitors, or guests (1) when they are under 21 years of age, or (2) with or in the company of such persons under age, or (3) in a drunken or disorderly manner, or with the appearance thereof; and
B. By anyone (1) on the campus, University properly, or at University-approved quarters of students, except family dwellings and off-campus quarters of students over 21 years of age are governed by separate rules, or (2) at University affairs, including athletic events, or (3) at organized gatherings of students.

IV. ENTERTAINMENT OF GUESTS. Entertainment of guests of the opposite sex in student living quarters is permitted only under circumstances approved by the Dean of Students office.

V. OFF-CAMPUS LIVING. Students living off-campus are expected to abide by the same standards as those living on campus or in University-supervised housing. University approval may be withheld from students for off-campus living if violations occur, or from living quarters where landlords permit conduct contrary to those standards.

VI. STUDENT MARRIAGES. Any marriage, either party of which is a student of the University, must be publicly announced. For this purpose notice of intent to marry must be filed with the Registrar at least 5 days before the marriage. All students on matriculation must indicate on the entrance blank whether married or single.

VII. FALSIFICATION OR WILLFUL SUPPRESSION of any information called for on any university form will be grounds for cancellation of registration.

VIII. 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.

DISCIPLINARY ACTION. When disciplinary action against a student or a student group becomes necessary, it is the responsibility of the Dean and Associate Dean of Students. Such action can be recommended by student councils, committees or boards to which such powers of recommendation have been delegated. However, these actions cannot become final without the approval of the above mentioned Deans. Among those often so recognized are the Executive Board of the Associated Women Students and the various living group councils.

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

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

STUDENT CONTRACTS AND OBLIGATIONS

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

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

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 convocation, commencement exercises, alumni reunions, pageants, horse shows, military drill and formations, dances, basketball games, and indoor athletic practice or exhibitions.

ATHLETICS. Athletics, including intercollegiate athletics, are a useful and valuable part of the University program for the development and growth of interested students. Facilities are provided for participation in some form of athletics by every member of the student body. Aid to students participating in athletics may be given only in conformity with the regulations of the National Collegiate Athletic Association.

ANNUAL INTERSCHOLASTIC. For more than fifty years Montana State University has held an annual high school invitational meet for track and field contests, golf and tennis tournaments, a declamatory contest, Little Theater Festival, interscholastic debate, and meetings of the Interscholastic Editorial Association.
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, four days a week. The paper has become a permanent factor in campus life.

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

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

ORGANIZATIONS

The entire student body is organized into one society known as the Associated Students of Montana State University. 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 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, Jubileers, University Symphony Orchestra, University Symphonette, the University Symphony Band and the Marching Band. These organizations provide music for university events during the year, and furnish an opportunity for all students who have musical talent to cultivate it as well as to participate in the social pleasures pertaining to such organizations.

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

The Montana Masquers is the University dramatics organization, open to students who have distinguished themselves in 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 scholarship honorary for women and men who evidence high scholarship and character.

The Association of United States Army 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 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 Kadettes is a local women’s honor society that serves the same purpose for the Army as the Angel Flight does for the Air Force.

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

OFFICIAL RECOGNITION OF STUDENT ORGANIZATIONS. Every student organization is required to register with and obtain recognition from 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.
ORGANIZATION OF INSTRUCTION

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

COLLEGE OF ARTS AND SCIENCES

Biological Sciences  Liberal Arts
Botany and Microbiology  Library Service
Chemistry  Mathematics
Economics  Medical Technology
English  Philosophy
Foreign Languages  Physical Sciences
French  Politics
German  Pre-Medical Sciences
Greek (no major)  Psychology
Italian (no major)  Reserve Officers Training
Latin  Corps
Russian (no major)  Air Science (no major)
Spanish  Military Science
Geography  Secretarial-Home Arts
Health and Physical Education  Sociology, Anthropology,
History  Social Welfare
Home Economics  Speech, Speech Pathology,
Liberal Arts  and Audiology
Law  Wildlife Technology
Medical Technology  Zoology

GRADUATE SCHOOL

SCHOOL OF BUSINESS ADMINISTRATION

Accounting  Law-Business
Banking and Finance  Marketing
Business Teaching  Secretarial Science
General Business  Industrial Organization and Management

SCHOOL OF EDUCATION

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

THE SCHOOL OF FINE ARTS

Art  Music
Drama  Music Education
  Elementary Teacher Training
  Secondary Teacher Training
Applied Music  Organ
Piano  String Instruments
Voice  Wind Instruments
Theory or 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  News-Editorial
Community Journalism  Radio-Television
Magazines

SCHOOL OF LAW

SCHOOL OF PHARMACY

AFFILIATED SCHOOL OF RELIGION (no major)

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 Graduate School. Courses under the last heading may be taken by graduate students only.

Thesis and independent studies courses may be so listed as to provide for indication of the subject matter on the permanent record.

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

EXPLANATION OF SYMBOLS

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

106, 104-105, 101-102-103—Course numbers of one, two, and three quarter courses. Unless otherwise stated, 104 is required before 105; 101 before 102, and 102 before 103.

IQ, 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.

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 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.

c/i—Consent of instructor required.

Prereq—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.
ANTHROPOLOGY, ART—27

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 Master 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 catalog, 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 catalog.)

At least 30 of the 50 major credits must be in anthropology courses. Sociology 101, Social Welfare 314, and 315 must be completed. Remaining courses for the major may be selected from any courses in the department. Students must total 365 and Speech 318 may be counted toward a major in Anthropology.

FOR UNDERGRADUATES

For explanation see Index under “Symbols”


153 SOCIAL ANTHROPOLOGY 1Q A W S Su 3. Institutions as exemplified in primitive religion, economics, political structures, art and music.

154 RACE AND MINORITIES 1Q W 3. Problems of assimilation of racial and cultural minorities.

252 SOCIAL ORGANIZATION OF PRIMITIVE PEOPLES 1Q S 3. Preq 152 or 153. The social structure of non-literate peoples: family, kinship structures, kin and local groups and associations, social classes, and political aggregates.

FOR UNDERGRADUATES AND GRADUATES

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

352 ARIACHAEOLGY OF MONTANA 1Q S 3 e/y Preq 152 or 153 or =. The origins and development of prehistoric 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 ARCHAEOLOGICAL SURVEY Any quarter in which field parties are organized. Pr, R-18. Preq 152 or 153 or =. A field course in Montana Archaeology.

354 OLD WORLD ARCHAEOLOGY 1Q S 4 Su 3 o/y Preq 152 or 153 or =. The development of civilization from the Neolithic Age to the dawn of written history.

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

356 PHYSICAL ANTHROPOLOGY 1Q W 4 e/y Preq 152 or =. The history, evolution, and present nature of man's bodily structures. Identification and determination of age and sex, of human osteological materials.

357 INDIANS OF THE SOUTHWESTERN UNITED STATES 1Q S 3 o/y Preq 152 or =. The development of Indian cultures in southwestern United States from the most ancient evidences of man to the present.

358 INDIANS OF NORTH AMERICA 1Q A 4 Su 3 Preq 152 or 153 or =. The native cultures of North America, north of the Rio Grande.

359 INDIANS OF SOUTH AMERICA 1Q W 4 e/y Preq 152 or 153 or =. The cultures of the Indians of South America.

360 PEOPLES OF AFRICA 1Q S 4 o/y, Su 3 Preq 152 or 153 or =. The aboriginal cultures of Africa.

361 PEOPLES OF ASIA 1Q S 4 o/y Preq 152 or 153 or =. The peoples and cultures of India, China, Japan, Siberia, and the Near East.

365 INDIANS OF MONTANA 1Q W Su 3 Preq 152 or 153 or =. A field course. Indian tribes of Montana and related areas.

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

372 CULTURE AND THEORY 1Q A o/y Preq 152 or 153 or =, and Soc 310. The development of theory and method in cultural anthropology to the present. Various archaeological, ethnological, and socio-psychological theories in the light of historical anthropology.

380 HISTORICAL LINGUISTICS 1Q S 4 e/y Preq 152 or 153 or =, and Gen. 360. Some significant theories and the methodological assumptions of selected schools of linguistic theory.

451 ADVANCED PROBLEMS a/q V 1-2 R-6 Preq 152 or 153 or =, and c/L.

452 MODERN INDIAN PROBLEMS 1Q A Preq 152 or 153 or =. Social and health problems, legislation, education, and economic conditions of Indians of the United States.

470-471 SELECTED TOPICS 3Q A W S 2 Preq 16 credits in Anthropology. Enter any quarter. Selected problems in Anthropology.

480 LINGUISTIC METHODS 1Q S 3 o/y Preq 152 or 153 or =, and Gen. 360 or Sph 119. Phonemic, morphological and semantic analysis of an unwritten language, using a native informant.

FOR GRADUATES

531 RESEARCH a/q V.

599 THESIS a/y V R-15.

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. A 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.

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

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN ART. In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for a Bachelor of Arts degree with a major in Art. 55 or more credits including Art 123 (8 cr.), 125-126, 231-232-233, 138, 140 (6 cr.), 139, 133, 135 (6 cr.), 139, 140 (9 cr.), 151, 307, 450. (For teaching major or minor 207 is taken instead of 450.) The foreign language requirement listed earlier in the catalog must be satisfied.

SPECIAL REQUIREMENTS FOR THE MASTER OF ARTS IN ART. In addition to the general requirements of 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, 373, 550); a minimum of 15 credits in the area of concentration (Art 340, 346, 540 for painting majors; 330 and 535 for ceramics majors; 335 and 540 for sculpture majors; 325 and 540 for design majors); five to 10 credits on a terminal project and/or thesis (Art 699); minimum of 10 credits in art electives outside the major area. Five credits may be taken in non-art electives. The graduate record examination is required, and each candidate must present a one-man exhibition. A foreign language is required.

FOR UNDERGRADUATES

For explanation see Index under “Symbols”

123 DRAWING 3Q A W S 4, Su 2 or 4, R-12. V when taught by extension. Objective and expressive drawing, using varied methods and subject matter.
28—BIOLOGICAL SCIENCES, BOTANY

125-126 COLOR AND DESIGN 3Q A W 3, Su 2 or 4. Creative design and use of color, theories, methods, and problems.
127-128 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 CERAMICS 2Q W S 2 R-4. Clay projects, building, throwing, firing, and glazing. Offered for one credit by extension.
133-134 PRINTING ARTS 2 Q A W 2 Prereq 6 credits of 123. Enter either quarter. Techniques of various graphic media: (133) etching, woodcut; (134) lithography, silk screen.
135 SCULPTURE 2Q W S 3 R-6 Prereq credits of 123. Methods and techniques.
139 WATERCOLOR 1Q S 3, Su 2 or 4 Prereq credits of 123. Offered by extension for 1 credit. Watercolor techniques and expressive use of subject matter.
151 LIFE DRAWING 1Q S 3 R-9 Prereq credits of 123. Expressive drawing from models. Anatomical construction.
160 LETTERING 1Q A 2. Pen and brush lettering and layout.
231-232-233 HISTORY OF ART 3Q A W S 3. Enter any quarter. A comprehensive treatment of every important art movement, related to corresponding social and cultural backgrounds; aesthetic values. (233 offered Su to non-Art majors.)

FOR UNDERGRADUATES AND GRADUATES

307 METHODS OF TEACHING SECONDARY ART 1 Q S Su 3. Objectives, methods, materials and evaluations.
325 ADVANCED DESIGN 3Q A W S V 1-4 R-12 Prereq 125-126. Advanced problems of a specialized nature.
330 ADVANCED CERAMICS 3Q A W S V 1-6 R-12 Prereq 129, 125-126. Advanced problems in ceramic techniques.
334 ADVANCED PRINTING ARTS 3 Q A W S V 1-6 R-12 Prereq 125-126. Advanced work in printing media.
335 ADVANCED SCULPTURE 3Q A W S V 1-6 R-12 Prereq 6 cr. of 135. Advanced problems in sculpture media.
340 ADVANCED PAINTING 3Q A W S V 1-6 R-12 Prereq 9 cr. of 140. Advanced work in painting media.
371 HISTORY OF RENAISSANCE PAINTING 1Q A 3 Prereq c/l. History, theory, aesthetics of Western European painting during the Renaissance.
372 MODERN ART 1Q W 3 Prereq c/l. History of Modern Art from Van Gogh to present day. Includes painting, sculpture, architecture and the minor arts.
373 HISTORY OF AMERICAN PAINTING 1Q S 3 Prereq c/l. American painting and aesthetic theories from the Colonial Age to the present day.
450 SEMINAR 1Q a/q V 1-3 R-6 Prereq c/l. Theories and practices applicable to art as a profession or to the teaching of art.

FOR GRADUATES

535 SPECIAL PROBLEMS 3Q A W S V R-15 Prereq c/l. Specialized advanced work in three-dimensional media.
540 SPECIAL PROBLEMS 3Q A W S V R-15 Prereq c/l. Specialized advanced work in two-dimensional media.
550 SPECIAL PROBLEMS 3Q A W S V R-15 Prereq c/l. Individual research in art history or art theories.
699 THESIS AND TERMINAL PROJECT a/q V R-15.

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 wish 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 BOTANY. In addition to the general requirements for graduation listed earlier in the catalog, the following special requirements must be completed for the Bachelor of Arts degree with a major in Biological Sciences: 48 or more credits in Biological Science including Botany 121-122 (General Botany), Botany 125 (Local Flora), Botany 225 (Plant Physiology), Zoology 194-105 (Elementary Zoology), Zoology 110 (Field Zoology), Zoology 291 (Comparative Vertebrate Zoology), Zoology 262 (Human Physiology), Microbiology 100 (Elementary Microbiology), General 300 (Conservation of Natural and Human Resources).

The following courses in allied sciences must be completed: Chemistry 101-102, 104 or 121-122-123 (students who plan to do advanced work should take the Chemistry 121-122-123), 2 quarters of Physics 111-112-113 or 211-222-223.
The foreign language requirement listed earlier in the catalog must be satisfied.

BOTANY

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

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

Besides offering a Bachelor of Arts 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, Forest Pathology and Taxonomy. More detailed information can be obtained from the chairman of the department of Botany and Microbiology.

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

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN BOTANY. In addition to the general requirements for graduation listed earlier in the catalog, the following special requirements must be completed for the Bachelor of Arts degree with a major in Biological Sciences: 48 or more credits in Biological Science including Botany 121-122 (General Botany), Botany 125 (Local Flora), Botany 225 (Plant Physiology), Zoology 194-105 (Elementary Zoology), Zoology 110 (Field Zoology), Zoology 291 (Comparative Vertebrate Zoology), Zoology 262 (Human Physiology), Microbiology 100 (Elementary Microbiology), General 300 (Conservation of Natural and Human Resources).
FOR UNDERGRADUATES

For explanation see Index under "Symbols"

121-122 GENERAL BOTANY 2Q A W S u 5 (3-4), or 4 (3-3) for forestry majors. Introduction to plant science, including anatomy, physiology, reproduction, evolution, genetics and a survey of the plant kingdom.

123 LOCAL FLORA 1Q S S u 3 (0-6) Prereq 122. The use of a manual for the identification of the flowering plants. Methods of collecting, pressing, and mounting plants. Field work.

130-131 PHARMACEUTICAL BOTANY 2Q W S 3 (2-3). Anatomy and physiology of plants with particular emphasis upon origin and structure of drugs, pharmacological principles, and plant identification with reference to drug-producing plants.

225 PLANT PHYSIOLOGY 1Q A W S 5 (3-4) Prereq 122 and Chemistry 121, 122, or 160 or 121-122-123. Recommended electives: Geography 200, 320, 360; Geology 101-102: Physics 111-112-113 or 221-222-223; Zoology 106; Math 362-363 or Psychology 229. The foreign language requirement fulfilled earlier in the catalog must be satisfied; French or German preferred.

Courses 123, 250, 341, 355, 365, 396, 370 and 375 may require field trips extending some miles from the campus. Students are required to pay their portion of the travel and insurance costs for such trips.

MASTER OF ARTS OR MASTER OF SCIENCE IN TEACHING.
See statement under Graduate School.
BUSINESS ADMINISTRATION

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 studies is based on two primary 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 foundation in fundamentals 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 the 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 processes.

The student may prepare 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, and secretarial services. Alumni of the School of Business Administration are to be found in professional, executive or managerial positions in many types of business activity. The fields of specialization indicate the many types of jobs which graduates may secure which are involved in the production and distribution of goods, the administration of the financial affairs of business activity, and the rendering of business services. For example, graduates secure positions in banks, investment houses, finance companies, insurance and credit agencies, certified public accounting firms, government, and industrial, wholesaling or retailing establishments. Training is available for those who desire to teach business subjects in secondary schools.

Successful completion of the four-year course in Business Administration leads to the degree of Bachelor of Science in Business Administration as described below. A combined program is offered in Law and Business Administration wherein a student combines his fourth year in business administration with first year law thus acquiring a Bachelor of Science in Business Administration at the end of the four-year period and the Bachelor of Laws at the end of a five-year period. Some students may obtain the degree of Bachelor of Arts in Business Administration by following the program listed below.

At the graduate level further opportunity is offered: to broaden the knowledge of the business environment, to do further specialization in a chosen area of concentration, to develop research techniques by carrying on a research project and in obtaining additional education in subject fields outside of business.

PRE-BUSINESS PROGRAM

A student, upon entering the University as a freshman, who desires to enroll in Business Administration registers as a pre-business administration major. In the first two years of study the student completes courses toward meeting the general university requirements and prepares course work for courses to be taken subsequently in the School of Business Administration.

The general university and pre-business administration requirements include: Health and Physical Education 101-102-123, 201-202-203 and ROTC (mental); English 101; Group I including Mathematics 112; requirements from Group II including Economics 201-202-203; requirements from Group III: Speech 111; Business Administration 180 or have a typing proficiency of 25 words per minute as determined by a test administered by the School of Business Administration; Business Administration 201-202, and 250.

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

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION. To achieve the degree of Bachelor of Science in Business Administration, the student must:

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


c. Select before the beginning of the third quarter of the junior year an area of concentration from the following: Accounting, Business Education, Finance, General Business, Management—Option A or Option B, Marketing, Secretarial Science. This selection of an area of concentration is to be indicated by completing a prescribed form available in the office of the Dean of the School of Business Administration and by filing the completed form in that office.

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

e. Offer not less than a total of 75 credits in courses 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 353, 374; courses listed in the curriculum of the areas of concentration.

f. Present not less than 96 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.

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

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

ACCOUNTING

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 303-304—Cost Accounting</td>
<td>6</td>
</tr>
<tr>
<td>Bus. Ad. 401-402—Income Tax</td>
<td>8</td>
</tr>
<tr>
<td>Bus. Ad. 409—Advanced Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 412—Accounting Theory</td>
<td>3</td>
</tr>
</tbody>
</table>

It is recommended that students preparing for the public accounting profession take the following additional courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 35—Governmental Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 403—Auditing</td>
<td>8</td>
</tr>
<tr>
<td>Bus. Ad. 410—Advanced Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 414—Data Processing</td>
<td>5</td>
</tr>
<tr>
<td>Bus. Ad. 418—C.P.A. Review</td>
<td></td>
</tr>
</tbody>
</table>

BUSINESS EDUCATION

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 182—Advanced Typewriting</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 194—Testimony</td>
<td>15</td>
</tr>
<tr>
<td>Bus. Ad. 192—Office Machines Practice</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 193—Beginning Secretarial Practice</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 194—Records Management</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 354—Gregg Shorthand Theory for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>Bus. Ad. 350—Methods of Teaching Shorthand, Typewriting and Transcription</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 351—Methods of Teaching Bookkeeping and Basic Business</td>
<td>2</td>
</tr>
</tbody>
</table>

*Business Education students are not required to take Speech 111, Bus. Ad. 322, 333, 335, 446, or 466 and may substitute 383 for 340.

FINANCE

This program is designed to give a broad understanding of the role of finance; its effects on institutions, and public and private 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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus. Ad. 320—Principles of Insurance</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 400—Administrative Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 420—Investments</td>
<td>4</td>
</tr>
<tr>
<td>Bus. Ad. 432—International Politics</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Ad. 430—Banking and Finance Seminar</td>
<td>2</td>
</tr>
<tr>
<td>Econ. 304—Public Finance</td>
<td>2</td>
</tr>
<tr>
<td>Econ. 311—Intermediate Economic Analysis</td>
<td>4</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:

- Bus. Ad. 415—Administrative Accounting
- Bus. Ad. 347—Managerial Economics
- Bus. Ad. 363—Advertising Principles
- or
- Bus. Ad. 364—Marketing Management
- Bus. Ad. 421—Business Cycles and Business Forecasting
- Bus. Ad. 444—Regulation of Industry

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

Option A. Industrial Organization and Management (Production)
- Bus. Ad. 303—304—Cost Accounting
- Bus. Ad. 442—Personnel Management
- Bus. Ad. 341—Industrial Purchasing and Traffic Management
- Econ. 321—322—Labor Economics

Option B. Personnel Management and Human Relations
- Bus. Ad. 408—Administrative Accounting
- Bus. Ad. 461—Marketing Management
- Bus. Ad. 444—Regulation of Industry
- Psych. 345—Industrial Psychology
- Econ. 321—322—Labor Economics

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

- Bus. Ad. 361—Industrial Marketing
- or
- Bus. Ad. 363—Retailing
- Bus. Ad. 365—Advertising
- Bus. Ad. 408—Administrative Accounting
- Bus. Ad. 461—Marketing Management
- Bus. Ad. 466—Market Research
- Eng. 394—Problems in Composition

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

- Bus. Ad. 183—Advanced Typewriting
- Bus. Ad. 184—185—186—Stenography
- Bus. Ad. 187—188—Advanced Stenography
- Bus. Ad. 190—191—Advanced Shorthand and Transcription
- Bus. Ad. 192—Office Machines Practice
- Bus. Ad. 194—Records Management
- Bus. Ad. 362—Advanced Secretarial Practice
- English 394—Problems in Composition

SECRETARIAL SCIENCE students are not required to take Speech 111, Bus. Ad. 322, 353, 355, 446, or 466 and may substitute 383 for 340.

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. In this program a student must satisfy the general university and pre-business administration requirements and during his junior year in the School of Business Administration, must complete Business Administration 250, 322, 340, 360, plus 25 additional credits as electives within the School of Business Administration (other than Business Administration 351-356-359). The student must earn at least 141 credits outside the School of Law.

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

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 complete the general university and pre-business administration requirements listed above; the business administration core courses listed above; the foreign language requirement; Bus. Ad. 408, 421, Public Finance or Labor Economics, and sufficient electives in Business Ad. courses to offer a minimum of 75 hours credit; the university requirements for graduation.

SPECIAL REQUIREMENTS FOR THE MASTER OF SCIENCE IN BUSINESS ADMINISTRATION. In addition to the general requirements of the Graduate School, the candidate's preparatory work must include Econ 201-202-203, 301; Bus Ad 201-202, 250, 340 and 360; or equivalent and the first two years of graduate work in the business administration core program of the School of Business Administration without these courses, but they must be offered in addition to the required forty-five credits.

A maximum of nine credits may be allowed for the required thesis. A minimum of 20 credits, and a maximum of 30 credits including a thesis and at least one year of graduate work in the School of Business Administration will be required.

FOR UNDERGRADUATES
For explanation see Index under "Symbols"
- 201-202 ELEMENTARY ACCOUNTING 2Q A W S Su 4. The basic principles underlying accounting procedures; including the techniques of recording simple business transactions and preparing the books and preparing financial statements. Application of the above procedures are developed as they apply to individual proprietorships, partnerships, and corporations.


- 403-404 AUDITING 2Q A W 4 Prereq 307. The general scope and purpose of auditing; encompassing generally accepted auditing standards and internal control procedures. Procedures for the analysis of internal control. Procedures for verifying the reliability of balance sheet and operating statements. Preparation of audit working papers, reports, and submission of the auditor's opinion.

- 408 ADMINISTRATIVE ACCOUNTING 1Q A W S 4, Su 3 Prereq 202. Open only to non-accounting majors. To give students majoring in finance, marketing, management, or general business an understanding of the problems of accounting data without involving the student in the technicalities of financial statements, internal controls, and its significance, budgeting, and the analysis of accounting data. Problems of preparing consolidated statements in the second quarter.


- 415 ACCOUNTING THEORY 1Q W 3 Prereq 307. A critical examination of theoretical postulates and principles underlying current accounting procedures, with emphasis on the problem of valuation as it relates to the measurement of periodic income. Reading of current accounting literature.

- 414 DATA PROCESSING 1Q S 4 Prereq 202. Programming and use of data processing equipment. The use of basic analytical tools in programming machines and designing systems and procedures. Use of data processing equipment in business decision making.

- 417 ACCOUNTING INTERNSHIP 1Q W 3 Prereq c/l. Students are placed with public accounting firms to receive training during the winter quarter. Written reports are required.

- 418 C.P.A. REVIEW 1Q S 5 Prereq 204, 404, 410. Primarily for students preparing to take the examinations for the certificate
of Certified Public Accountant. Comprehensive review of questions and problems in practice, theory, and auditing given by the American Institute of Certified Public Accountants.

419 ACCOUNTING SEMINAR 1Q a/q 2.

FOR GRADUATES

502 CONTROLLERSHIP PRINCIPLES AND PRACTICE 1Q A 3 Prereq 410 and approval of the graduate committee. Analysis of the controller's role and function and the organization of the controller's department. The controller's place in the management team and the role he plays in the solution of management problems.

503 CONTEMPORARY ACCOUNTING THOUGHT AND PRACTICE 1Q W 3 Prereq 410 and approval of the graduate committee. Modern accounting theory and practice. The development of accounting thought since 1900 and the social significance.

504 THEORY OF INCOME DETERMINATION 1Q S 3 Prereq 410 and approval of the graduate committee. The influence of central banking operations on conditions in the money market and on the general level of business activity.

599 RESEARCH 1Q a/q V R-6 Special research problems.

609 THESIS a/q V R-9.

BUSINESS LAW

FOR UNDERGRADUATES

357-358 BUSINESS LAW 2Q 3 357 A W, 358 W S. (357) Introduction to law, contracts, agency, nature of personal property, bailment. (358) Sales, partnerships, corporations, other business forms, credit security, real property, introduction to the nature and types of negotiable instruments. Students taking the combined 6-year curriculum in Business Administration and Law are not eligible to take these courses.

359 C.P.A. LAW REVIEW 1Q S 3 Prereq 357-358. Primarily for accounting majors intending to take the CPA examinations, but open to all students except those taking the combined 6-year program in Business Administration and Law. Review of contracts; negotiable instruments; introduction to the law of business organization up to the time of the CPA examinations. Course examinations will usually be taken from former examinations given by the American Institute of Certified Public Accountants.

FINANCE

FOR UNDERGRADUATES

329 PERSONAL INVESTMENTS 1Q 2 Su. Savings accounts, purchasing insurance, securities, investment trusts. The basic facts with which a layman should be acquainted. Not open to Business Administration majors. Available as cognate graduate credit for Education degrees.

FOR UNDERGRADUATES AND GRADUATES

322 BUSINESS FINANCE 1Q A W S 4, Su 3 Prereq Econ 301. Forms of business organization; financial aspects of promotion and organization; sources of financing and the administration of income; failure and reorganization.

323 COMMERCIAL BANKING 1Q W 4 Prereq Econ 301. Liquidity, loan and investment policy, credit analysis, loan administration, interchange banking, bank opening, earnings, and relationships with customers, government, and the public.

324 REAL ESTATE 1Q A 4, Su 3 Prereq Econ 301. Understanding real estate value; the market; real estate law and the mechanics of buying and selling; property management and landlord-tenant relationships; mortgage risk analysis; planning and zoning for city growth; taxation; the role of government in financing.

339 PRINCIPLES OF INSURANCE 1Q A W S 3 Prereq Econ 263. Basic risk analysis; introduction to fire, casualty, life and health coverages; business and personal insurance needs; company organizations and the regulatory environment; the liability peril; automobile insurance laws and claims procedure; government regulation.

341 LIFE AND HEALTH INSURANCE 1 Q A W S 3 Prereq 339. Analysis of individual and group contracts; human life values and insurance needs; estate planning; the impact of taxation; business continuation agreements and insurance; pensions and annuities for business and individual retirement programs.

352 PROPERTY AND CASUALTY INSURANCE 1 Q 3 8 Prereq 339. Concentrated analysis of coverages; insurance management; problems facing specific types of business and personal risks; multiple-line policies; legal interpretation and analysis; practical case problems involving liability and direct loss situations.

420 INVESTMENTS 1Q S 4 Prereq Econ 301. Investment principles and their application in formulating investment policies for individuals, institutions and businesses. Current analytical techniques used in determining the value of securities.

421—422 BUSINESS CYCLES AND BUSINESS FORECASTING 2Q (421) A 4 Su 3 (422) W 2 Su 3 Prereq Econ 301. History, measurement, and analysis of fluctuations in business activity; factors influencing employment, production, prices and national income; problems in interpretation and forecasting; consideration of policies intended to stabilize business conditions.

423 MORTGAGE BANKING 1Q W 2 Prereq 304. 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, bank reserves, institutional portfolio policies, treasury cash balances and refunding operations on the economy. The influence of changing needs and instruments of corporation finance. Designed to develop in the student an ability to analyze and appraise current money market developments.

439 BANKING AND FINANCE SEMINAR 1Q a/q 2.

FOR GRADUATES

520 THEORY AND MANAGEMENT OF CENTRAL BANKING 1Q A 3. The functions and operation of central banking in the current global banking system and its influence on central banking operations in the world economy.

521 PROBLEMS OF CORPORATE FINANCIAL MANAGEMENT 1Q W 3 Prereq 520. Problems associated with corporate financing of current and long term operations. The nature of securities and money markets and the organization of business finance. Federal legislation affecting the flow of funds to business enterprises. Case problems and readings in current literature will be used extensively.

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

599 RESEARCH 1 Q a/q V R-6. Special research problems.

609 THESIS a/q V R-9.

MANAGEMENT

FOR UNDERGRADUATES

341 INDUSTRIAL PURCHASING AND TRAFFIC MANAGEMENT 1Q W 4 Prereq 340, 360. Current practice and problems in the industrial production areas of: materials procurement, inventory controls, warehousing, materials handling.

344 AMERICAN INDUSTRIES 1Q S 4 Su 3 Prereq 340, 360. Economic problems and technological processes of selected manufacturing and communications industries. Location factors, company structures, mergers and competition and national policy relating to oligopoly.

FOR UNDERGRADUATES AND GRADUATES

346 ADMINISTRATION AND BUSINESS POLICIES 1Q A W S 4, Su 3 Prereq 340, 360, and Econ 291. Economic concentration and maintaining competition. Changing relationships between government and industry emphasizing regulatory legislation, administrative agencies, national policies and social change.

441-442 PERSONNEL MANAGEMENT 2Q 441 A W 4, Su 3, 442 S Prereq 340 and Psych 110. (441) Personnel function in the industrial organization; selection, employment and executive development, job evaluation, human relations. (442) Analyzing selected problems such as: job evaluation, executive and supervisory appraisals and development, work simplification and labor management relations.

444 REGULATION OF INDUSTRY 1Q A W 4, Su 3 Prereq 340, 360, and Econ 301. Top-management oriented to develop an integrated view of the organic specializations. Practice in analytical tools involved in problem solving and in coordination.

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

FOR GRADUATES

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

549 SEMINAR IN MANAGEMENT POLICIES AND PERSONNEL RELATIONS 1Q W 4. Comprehensive analysis of major policy problems; the human relations and personnel approach.

549 GENERAL ADMINISTRATIVE MANAGEMENT PROBLEMS 1Q S Su 3. Theory and practice in general management; objectives, planning, policy formulation, organization structuring and executive selection and development.

599 RESEARCH 1 Q a/q V R-6. Special research problems.

609 THESIS a/q V R-9.
MARKETING
FOR UNDERGRADUATES

383 SALESMANSHIP 1 Q A W S Su 2. The fundamentals and
techniques of the selling process, including the pre-approach, ap-
proach, demonstration, handling of objections and the close.

FOR UNDERGRADUATES AND GRADUATES

380 MARKETING 1Q A W S Su 4 Prereq Econ 203. Product
policy, channels of distribution, merchandising, marketing institu-
tions, marketing functions, pricing, government regulation.

361 INDUSTRIAL MARKETING 1Q W 4 Prereq 360. Eco-
nomic factors affecting marketing policy are analyzed. Deals with
buying practices, channels of distribution, industrial distributors,
price, markets, and research policies.

362 RETAILING 1Q A W 4 Prereq 360. Types of retail stores,
location, buying, pricing, display, store selling, advertising and
control cost.

363 ADVERTISING 1Q A S 4, Su 3 Prereq 360. The principles
and techniques of advertising examined from the viewpoint of the
businessman.

364 SALES MANAGEMENT 1Q W 4 Prereq 360. Management
of the sales force: planning, coordination, and control of the market-
ing program.

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

401 MARKETING PROBLEMS 1Q A 4 Prereq 360 and 361 or
362. Case studies of problems facing the marketing executive.

402 PRICING POLICIES AND PRACTICES 1Q S 4 Prereq
401. The roles of pricing strategy and competition in marketing
decision-making. Administrative marketing problems related to
elasticity of demand, cost curves, marginal analysis and competitive
price behavior. Marketing policies and strategies as they relate to
competition.

404 ADVANCED RETAILING 1Q S 4 Prereq 362. Manage-
ment problems of large and small retailers. Emphasis on individual
student projects, and research.

406 MARKET RESEARCH 1Q A S 3 Prereq 250, 260. Re-
search techniques and methods including statistical analysis, quanti-
tative experimentation, and simulation. Survey of current research
practices in marketing research and participation in class field project.

408 MARKET ANALYSIS AND PLANNING 1Q W 2 Prereq
250, 360. Utilization of statistical and accounting techniques in
analyzing past and planning future marketing performance.

479 MARKETING SEMINAR 1Q a/q 2 R-6 Prereq 15 credits
in marketing and c/l.

FOR GRADUATES

500 MARKETING THEORY 1Q A 3. A critical analysis and
synthesis of marketing literature and marketing from the viewpoint
of other disciplines.

561 CURRENT MARKETING PROBLEMS 1Q a/q 2 R-6. In-
vestigations of areas of current interest in marketing. Reports and
discussions designed to develop an analytical attitude toward market
problems.

599 RESEARCH 1Q a/q V R-6. Special research problems.

699 THESIS a/q V R-9.

SECRETARIAL AND BUSINESS EDUCATION

Not more than 19 credits earned in Business Administration
180-181-182, 183, 184-185-186, 187-188-189, and 190-191 may be
applied toward graduation by students not majoring in Business Admin-
istration, Secretarial-Home Arts, or earning a teaching major or
minor in Business Administration. To register for any course in
 shorthand or stenography a student must be concurrently registered
in English 101, or have completed 101 or its equivalent.

FOR UNDERGRADUATES

180-181-182 ELEMENTARY TYPEWRITING 3 A W S 2 Prereq
Placements for 181-182. Development of basic skills. With 1 H.S.
entrance unit, no credit in 180; 2 units, no credit 180, 181.

183 ADVANCED TYPEWRITING 1Q A W S 2 Prereq 182 or
placement. Application of basic skills to production jobs.

184-185-186 STENOGRAPHY 3 A W S 5. Theory, dictation,
transcription. With 1 H.S. entrance unit, no credit in 184; 2 units,
no credit 184, 185.

187-188-189 ADVANCED STENOGRAPHY 3 Q A W S 5 Prereq
187: 186 or placement; 188: 187 and 190 or placement; 189: 188 and
191 or placement. Review, stenography, dictation, Civil Service and
State Merit tests. Concurrent enrollment in 190-191.

190-191 ADVANCED SHORTHAND TRANSCRIPTION 2Q W S
1 Prereq 188 or placement. Concurrent enrollment in 190-191 re-
quired.

192 OFFICE MACHINES PRACTICE 1Q A W S 2. Calculators
and Adding.
CHEMISTRY

is the science which seeks to determine the composition of substances, how their properties are related to their composition and when and how one substance reacts with another. A study of chemistry also includes the energy changes accompanying chemical reactions. The chemist is concerned with transforming raw materials and waste products into useful products; in making new products with new uses, such as plastics, alloys, medicinals, etc. A knowledge of chemistry is essential in many other professions. Biologists and physicians, for example, must understand the chemical nature of the materials of which living things are composed, the numerous chemical processes necessary to life, as well as ways of altering these materials or processes.

Opportunities for employment for graduates with a Bachelor's degree in chemistry are many and varied. In addition to positions in laboratories connected directly with chemical industries, with petroleum companies, etc., there are many jobs for chemists in laboratories connected with state and national governmental agencies, with hospitals, and with testing agencies. Good students are encouraged to continue their studies toward the M.S. or Ph.D. degrees in chemistry and are aided in obtaining graduate teaching assistantships or fellowships to help them finance these goals.

The normal four-year course leads to the degree of Bachelor of Arts. Most courses in chemistry involve considerable laboratory work. The M.S. and Ph.D. degrees are also offered. (See Graduate School.)

Prospective students desiring further information should write the Chairman, Chemistry Department.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, the student needs algebra, geometry and trigonometry. It is desirable that the student complete two years of Algebra (if offered), Chemistry, German or French.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN CHEMISTRY. In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in Chemistry: Chemistry 121-122-123, 245, 261-262-263, 344, 345, 352, 371-372-373, 375-376-377, 431-432-433, and 5 credits selected from Chemistry 344, 345, 346, 347, 348, 353, 355, 366, 403, 404, 405, 474, 475, 476, 481, 482, 490. A t the time of graduation a major in Chemistry must have obtained a knowledge of German or French on the basis of one year (or two quarters) of German. College Physics and Mathematics through 252 are required. Every student is required to pass a senior comprehensive examination in Chemistry.

CHEMISTRY CURRICULUM

Freshman Year

A W S
Chem. 121-122-123
Math. 116-118-118
Eng. 110-110-110
Phys. 100
Elective—Group II or III

Cr. Cr. Cr. 5 5 5 1 1 2-3 2-3 16-19 16-17 16-17

Sophomore Year

A W S
Chem. 261-262-263
Math. 251-255
German 101-102-102
Chem. 245
Mil. Science or Air Science 101-102-103
Phys. 100
Elective—Group II or III

Cr. Cr. Cr. 5 5 5 2-0 2-0 2-0 1 1 1 1 1 2-3 2-3 2-3 16-18 16-18 15-17

Junior Year

A W S
Physics 221-222-223
German 213 & 215
Chem. 352
Chem. 344
Electives

Cr. Cr. Cr. Cr. 5 5 5 3 3 3 2-5 2-5 10-12 14-17 14-17 15-17

Senior Year

A W S
Chem. 371-372-373
Chem. 375-376-377
Elective of Chem. 481-482
Chem. 431-432-435-436
Electives

Cr. Cr. Cr. Cr. 3 3 3 5-8 5-8 0-9 1 1 1 1 1 3-6 3-6 3-6 14-17 15-18 15-18

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

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

121-122-123 COLLEGE CHEMISTRY 3Q A W S Su 5 (5-4). For science majors and those students wishing more than one year of chemistry. The principles and theories of chemistry, properties and reactions of inorganic compounds, including qualitative analysis. Students who have completed Chem 101-102 may not receive credit for 121-122 but are eligible for credit in 123.

160 SURVEY OF ORGANIC CHEMISTRY 1Q S Su 5 (5-4). Normally, to follow Chemistry 101-102 as the 3rd quarter of chemistry for students in non-science majors desiring a one year general course only. Chemistry 160 is also open for credit to students who have completed Chemistry 101 and 102 or the two quarters of a full year course in general or college chemistry.

245 QUANTITATIVE ANALYSIS 1Q W S 4 (3-6). Prereq 123. Gravimetric, volumetric and colorimetric methods of analysis.

261-262-263 ORGANIC CHEMISTRY 3Q A W S 5 (4-4). Prereq 102 or 122.

FOR UNDERGRADUATES AND GRADUATES

329 CHEMICAL PRINCIPLES 1Q S 5 (5-4). Prereq a previous course in general chemistry or high school teaching experience in chemistry and c/l. This course is designed in a sequence to prepare for the master of science in teaching.

344 ADVANCED QUANTITATIVE ANALYSIS 1Q A 3 (2-6) Prereq 245. The methods of quantitative analysis of mixtures and complex materials.

349 TECHNICAL ANALYSIS 1Q A 2 (0-6) Prereq 245. Qualitative analysis of materials of commercial importance.

346 INSTRUMENTAL ANALYSIS a/q V 2-5 R-5 (2-5 or 10) Prereq 245. Modern instrumental methods of analysis.

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

348 ADVANCED QUALITATIVE ANALYSIS 1Q A 3 (2-6) Prereq 123. The use of modern techniques and methods of qualitative analysis.

352 INORGANIC CHEMISTRY 1Q W 3 (3-0) Prereq 123 and 263. The principles of systematic inorganic chemistry.

353 INORGANIC CHEMISTRY 1Q S 3 (3-0) Prereq 352. Chemistry of the representative elements.

355 INORGANIC CHEMISTRY LABORATORY 1Q W S 2 (0-6) Prereq 123, 263, and c/l. The techniques in preparation of inorganic compounds.

360 ORGANIC QUALITATIVE ANALYSIS 1Q S Su V 3-3 (2-4 to 6) Prereq 361 and 261, and 15 credits of college physics. Those portions of physical chemistry which are of special interest to prospective students of medicine.

371-372-373 PHYSICAL CHEMISTRY 3Q A W S 3 (3-6) Prereq 123. MATH 283 and Physics 221 or concurrent enrollment. The more important methods, results and problems of theoretical chemistry.

375-376-377 PHYSICAL CHEMISTRY LABORATORY 3Q A W S 1 (0-4) Prereq 360, and 311-372-373 or concurrent enrollment.

384 PHYSIOLOGICAL CHEMISTRY 1Q S 3 (3-0) or 5 (5-4) Prereq 160 or 261. Chemistry and metabolism of proteins, lipids and carbohydrates, respiration; colloids.

431-432-433 CHEMICAL LITERATURE 3Q A W S Su 1 (0-2) Prereq 363 and a reading knowledge of German. Presentation and discussion of current literature of chemistry. Use of the library.

461-464 THEORETICAL ORGANIC CHEMISTRY 2Q a/q 3 (4-6) Prereq 263.

462 ADVANCED ORGANIC LABORATORY TECHNIQUES 1Q a/q 2 (3-4) Prereq 263 and c/l. The techniques of identification of pure organic compounds and mixtures; general class reactions of organic chemistry.

470 SURVEY OF PHYSICAL CHEMISTRY 1Q S 5 (5-4) Prereq 373 or 375, 160 or 261, and 15 credits of college physics. Those portions of physical chemistry which are of special interest to prospective students of medicine.

471-472-473 PHYSICAL CHEMISTRY 3Q A W S 3 (3-6) Prereq 362 and MATH 281. The principles of thermodynamics and their application to chemical systems.

474 ELECTROCHEMISTRY 1Q A 3 (2-6) Prereq 373. The principles and applications of electricity to chemical reactions.

476 RADIOCHEMISTRY 1Q W 3 (2-4) Prereq 102 or 122. The principles of nuclear reactions and application of radiochemistry.

481-482 ELEMENTARY BIOCHEMISTRY 2Q A W 4 (3-4) Prereq 263. Primarily for science majors.
408 PROBLEMS AND RESEARCH a/q V R-10 Prereq c/l. Independent library and laboratory work under the guidance of a faculty member. An introduction to research methods.

FOR GRADUATES

620 SEMINAR a/q 1 R-6.

651-652 ADVANCED INORGANIC CHEMISTRY 3Q A W S 3 (3-0) Prereq 352 and 373. Special topics in advanced inorganic chemistry.

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

661-662-663 ADVANCED ORGANIC CHEMISTRY 3Q A W S 3 (3-0) Prereq 264.

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

671-672-673 ADVANCED PHYSICAL CHEMISTRY 3 Q A W S 3 (3-0) Prereq 373.

675 CHEMICAL BONDING 1Q W 3 (3-0) Prereq 373.

677 PHYSICAL CHEMISTRY SEMINAR 1Q a/q 2 (2-0) R-6 Prereq 373.

690 RESEARCH a/q V.

699 THESIS a/q V R-15.

DRAMA

study is designed to train the student in acting, directing, design, playwriting, and the technical phases of dramatic production and to give him experience in these areas: to prepare him to teach and direct in the high school theater and the college and university theater; and to relate through the study of the art of the theater the place of theater in the societies of the past and present. The Montana State University Drama Department offers work leading to the Bachelor of Arts in drama and the Master of Arts degree in drama.

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

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN DRAMA. In addition to the general requirements listed earlier, the following special requirements must be completed for the Bachelor of Arts degree with a major in drama: Drama 112, 121, 131, 223, 307-309-309, 351, 261 (4 cr.), 361-362-365, 352, 351, 352, 401-402-465 (4 cr.), 461 (4 cr.), plus a minimum of 5 additional credits in the drama department, 3 of which may be in Drama 101.

The following courses outside the drama department are required: Speech 116, 261, English 341, 342, 344, or 345.

The foreign language requirement listed earlier in the catalog must be satisfied.

Senior comprehensive examinations are required for all graduating students.

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

DRAMA MAJORS PLANNING TO TEACH in Montana secondary schools must take, in addition to their drama major, a teaching major in another area for certification purposes. They will be certified in drama as a teaching minor. If the teaching major chosen is English (highly recommended), the student should follow the English requirements in the English broad fields major listed under Education, or Schedule C: Teaching, under English. The English electives should be met, in part, by English 307-308-309 and 341 (12 hours), which are part of the drama major degree program. Drama majors electing a teaching major will not be required to include Drama 301-302, English 344 (or 345) or five credits of drama electives, as part of their drama degree.

In addition to the above requirements, state certification requires 24 hours in education (Education 200, 204, 305, 405, 407) plus Psychology 110. See Education listings.

SPECIAL REQUIREMENTS FOR THE MASTER OF ARTS IN DRAMA. In addition to the general requirements of the Graduate School, candidates must have taken drama 332, 343, 251, and 341, for admission to a graduate program.

The following courses, if not previously taken at the undergraduate level, must be included: English 387-388-305, 344, and 345.

The 45 credits of required graduate work must include a minimum of 5 credits in technical theater courses, 15 credits in the area of concentration, 10 credits of non-drama electives and a maximum of 10 credits for the thesis. Students with a major interest in technical theater may, upon selection by the Drama staff present a production project in lieu of the regular research thesis. Such a project will include design and execution of all technical aspects of a full-length play to be produced in the University Theater. Completed designs and plans for the project must be presented in proper thesis form.

Also required are: direction of a full length play, a foreign language, and a final oral comprehensive examination.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

101 REHEARSAL AND PERFORMANCE 3Q a/q 1 R-6. Enter any quarter. Prereq c/l. Students engaged in any aspect of production including acting, directing, lighting, stagecraft, makeup, costumes, properties, business and publicity, etc. are eligible for registration.

112 INTRODUCTION TO THE THEATER 1Q A 2. A survey of the elements which make up the art of play production. The principles underlying all the arts.

121 ELEMENTARY ACTING 1Q A W S 2 (2-2). Principles of pantomime and characterization with attention to expressive bodily action. Techniques of voice in acting and exercises for vocal flexibility, range, articulation, and enunciation.

131 ELEMENTARY STAGECRAFT 1Q A W S 2 (2-4). Principles and practice in the construction, rigging, and handling of stage scenery. Students will work on construction crews of major productions.

223 ELEMENTARY DIRECTION 1Q W 3 (3-2) Prereq 121. Principles and techniques of stage direction and rehearsal. The production of the one-act play form will be considered and used in this course.

251 STAGE MAKEUP 1Q A W S 2. Principles of and practice in theatrical makeup. Students will work on makeup for major productions.


FOR UNDERGRADUATES AND GRADUATES


306 THE WRITING OF DRAMA 1Q A W S 2 R-6. Prereq Engl 106 or 202: 4 cr. from Drama 121, 131, 223. Techniques and practice in writing the one-act play and the full-length play. Experimental performances of plays.

307-310-309 THE DRAMA (see English)

313 THEATER IN THE COMMUNITY 1Q A 2 e/y Prereq c/l. The place in society of the children's theater, and the community and little theater.

321 THEATER PRODUCTION IN THE HIGH SCHOOL 1Q S Su 3. Problems of high school theater including play selection, staging, publicity, promotion, organization.

332 ADVANCED STAGECRAFT 1Q S 3 Prereq 151. Principles and practice in scene painting, properties, sound and music, and elements of lighting and costume. Students will work on major productions.

341 STAGE COSTUMING 1Q S 2 Prereq 112. History of costumes of various periods. Principles of adapting the period style to the period play. Students will work on costumes for major productions.

342 ACTING FOR TELEVISION 1Q W 3 Prereq 121. Theory and the practice of acting before the television camera.

343 STAGE LIGHTING 1Q A 2 Prereq 131. Principles and practice in stage lighting, theatrical lighting equipment and its use, and their use. Students will work on lighting for major productions.

351 ADVANCED ACTING 1Q A 3 Prereq 121. Study and practice in creating a role. Application of the principles of voice, bodily action, characterization.

352 DRAMATIC INTERPRETATION 1Q S 3 Prereq Speech 261. Theory and practice of play-reading using a wide variety of dramatic materials and forms.

364 CREATIVE DRAMATICS FOR CHILDREN 1Q W Su V 2-4 Prereq c/l. Children's literature suitable for adaptation to dramatic form; improvisational and other playmaking techniques; the dramatic element in Washable costumes and applications; and dramatic interplay with laboratory groups of children from the community.

374 THEATER FOR CHILDREN 1Q Su only 2 or 4. Prereq teaching experience and c/l. History and objectives of theater for the child audience; survey of existing professional and community children's theater programs; techniques of acting, directing, and producing plays for children to be shown before children audiences in the community.
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 to become effective leaders. (2) To introduce students majoring in economics to the various special fields of study within economics. This training along with extensive work in the other liberal arts and sciences, is intended to instill breadth of intellectual interest, critical habits of thought, a problem-solving attitude, and facility of expression. (3) To help meet, through graduate work, the increasing demands for competent professional economists in industry, commerce, government and education.

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

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

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE. In addition to the general requirements for graduation listed earlier in the catalog, 39 credits in Economics must be completed for the Bachelor of Arts degree with a major in economics.

Unless circumstances peculiar to the student's best interest indicate otherwise, the student should take in the sophomore or junior year, Economics 231-232; 235, 241, 242, 245, 246; two quarters of History 251-252 or 253; Anthropology 102 or Sociology 101; in the junior or senior year, Economics 301 and 311.

The following may be counted as part of the 39 credits required for a major in Economics: History 233 and 374, Political Science 260, Mathematics 302-305, Business Administration 360, 421. It is recommended that the student take Business Administration 201-202. A foreign language is required.

COMBINED MAJORS. Minimum of 60 credits. Combined majors in economics and political science or sociology may be earned by meeting the following requirements with the remaining credits selected according to the student's interests. Economics 201-202-203; Mathematics 125, 201, 311, and at least 15 additional credits in upper division courses. Political Science 101, 202-203 and 15 additional credits of which 12 must be in upper division courses. Sociology 101, 304, 305 and at least 12 additional credits in upper division courses. A comprehensive examination is required of seniors with a major in the Economics-Political Science concentration.

ECONOMICS-LAW COMBINATION. In addition to the general requirements for graduation, in addition to the following requirements with the remaining credits selected in consultation with the student's advisor, a minimum of 50 credits in economics must be earned in three years. First year: 15 credits. Second year: 15 credits. Third year: 15 credits. A major in Economics and a minor in law will complete the requirements for the Bachelor of Arts degree with a major in economics. Students should take at least one course in each of the following areas: History 345, 346, 376; Political Science 343, 344. Latin is recommended for meeting the foreign language requirement.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

101 CULTURAL ECONOMICS 1Q W 5. Institutional development of economic society; nature, origins and problems of modern capitalism.


111-112-113 ECONOMIC GEOGRAPHY (See Geography).

FOR UNDERGRADUATES AND GRADUATES

301 MONEY AND BANKING 1Q A S Su 4. Prereq 203. Role of money; banks as suppliers of money; Federal Reserve System as regulator of money; monetary theories, history and policy.

302 SOCIAL SCIENCE METHODS (See Sociology).


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

311-312 INTERMEDIATE ECONOMIC ANALYSIS 2Q A W, 311 Su, 4 Prereq 203. (311) Theory of the firm. (312) Input analysis and welfare conditions.

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


324 INDUSTRIAL RELATIONS 1Q S Prereq 203. Problems and public policy in labor-management relations.

325 SOCIAL SECURITY 1Q S Prereq 203. Theoretical analysis and problems of public welfare.

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


340 ECONOMIC DEVELOPMENT 1Q S 4 Prereq 203. Theoretical determinants of economic growth in poor and rich countries.

365 PUBLIC UTILITY ECONOMICS 1Q A 3 Prereq 203. Analysis of costs and pricing policies; economic aspects of regulation.


374 COMPARATIVE ECONOMIC SYSTEMS 1 Q 8 alternate years 4 Prereq 203. Capitalism, fascism, socialism, communism; evaluation.

375 THE RUSSIAN ECONOMY 1Q S 4, Su 3 Prereq 203.

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

376 ECONOMICS OF MONTANA 1Q W Su 3 Prereq 203. Factor, energy, and forces determining the economic well-being of the people of Montana.

380 AGRICULTURE ECONOMICS 1Q A 4 Prereq 203. Agricultural industry, supply of and demand for farm products, farm finance, taxation, agricultural policies.

382 CONTEMPORARY ECONOMIC PROBLEMS 1Q Su 3 Prereq 203.

408 MONETARY THEORY 1Q W 4 Prereq 301.
## 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—elementary, secondary, and college. The student must earn the college degree in the field in which the student is to teach, and study and practice in the area of teaching. In addition, the teacher must develop an appreciation of people as individuals and as members of society because systematic application of teaching 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 for 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 will 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 the United States and its possessions. 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 advantage of graduate work which will prepare them for specialized positions such as school administrator, supervisor, counselor, curriculum coordinator, reading specialist, and research director; or build up their backgrounds in the field or fields which they teach. Montana State University offers graduate work leading to the master's and doctor's degrees.

A six-year program in school administration (two years of graduate work beyond the bachelor's degree) is also offered. The program is designed for grade level which will prepare them for specialized positions such as school administrator, supervisor, counselor, curriculum coordinator, reading specialist, and research director; or build up their backgrounds in the field or fields which they teach. Montana State University offers graduate work leading to the master's and doctor's degrees.

## FOR GRADUATES

Students desiring to take graduate work in economics must be admitted to the Graduate School. They must have earned at least a bachelor's degree in economics and carry the capacity to carry graduate level courses. To obtain a Master's degree, the student must earn credits in each of the following: Economics 406, 410, 495, and 689.

## 501 GRADUATE RESEARCH

a/q V R-6.

## 699 THESIS

a/q V R-15.

## EDUCATION—37

### KEEP IT RIGHT

**WASHINGTON STATE UNIVERSITY**

- **ADVANCED ECONOMIC ANALYSIS** 1Q S 4 Prereq 25 credits in economics including 311.
- **MATHEMATICAL ECONOMICS** 1Q S 4 Prereq 312 and Math 125.
- **ADVANCED PROBLEMS** a/q V 1-2 R-6 Prereq 12 credits in economics and c/1.
- **SEMINAR IN ECONOMICS** a/q V 1-2 R-6 Prereq 16 credits in economics and c/1.

### 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 carry graduate level courses. To obtain a Master's degree, the student must earn credits in each of the following: Economics 406, 410, 495, and 689.

## ADMISSION TO TEACHER EDUCATION

All students preparing to teach must apply for admission to teacher education before they become eligible for recommendation for Montana State University for state certification to teach. Students must have a minimum grade point average of 2.3 in all courses undertaken in (1) Education, and (2) all other courses. (See below under Admission to Professional Quarter.)

### SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN EDUCATION

In addition to the general requirements for graduation in the undergraduate degree, the candidate for the degree of Bachelor of Arts in Education will meet the following requirements:

**PREPARATION FOR TEACHING IN THE SECONDARY GRADUATE SCHOOL**

Graduate students must earn 36 credits in Education, including the following required courses totaling 35 credits: Education 200, 205, 304, 300, 302, 406 (10 credits), 409, 415, and 422 or their equivalents, and elective courses totaling 3 credits selected from other courses in Education. Students wishing to qualify for state secondary certification to teach in the teaching major and 30 or more credits in a teaching minor must meet the requirements for the degree and 36 credits in this area will be found in the last few pages of the Education section of the catalog.

Suggested Curriculum in secondary education:

**Freshman Year**

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<tr>
<td>English 101-102-103</td>
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<tr>
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<td>American History 121</td>
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**Sophomore Year**

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**Junior Year**

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**Senior Year**

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**Electives**

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</table>
38—EDUCATION

Sophomore Year

History, Political Science, Sociology or Economics (to fulfill Group II requirements) 4 4 3
Psych. 110—Introduction to Psychology 2
EDUC 209—Orientation to Education 1
Teaching Major Sequence (listed later) 4–5 4–5 4–5
Electives 3 3 3

Junior Year

EDUC 200—Educational Psychology 4
EDUC 342—The School Library in Teaching 4
EDUC Methods Course (in one or both teaching areas) 4
Teaching Major Sequence (listed later) 4–5 4–5 4–5
Electives 4–5 4–5 4–5

Senior Year

EDUC 305—Sec. Sch. Tchgs. Procedures 5
EDUC 405—Student Teaching: Secondary 10
EDUC 407—Curriculum Foundations 5
EDUC 450—Guidance in the Elem and Sec School 4
EDUC 452—Educational Measurement 4
Effective Courses in Education 3
Teaching Major or Minor Sequence, or Electives 10–12 8–10
18 16–16 15–17

PREPARATION FOR TEACHING IN THE ELEMENTARY GRADES. Candidates must earn a minimum of 40 credits in Education. In addition to the following required courses totaling 40 credits: Education 200, 202, 301, 302, 303, 346, 404, 467.

For elementary teachers, Group I requirements may be satisfied by 12 credits of the following: General 125, 126, 127, and Mathematics 130, 220.

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.

Any student who plans to do student teaching in the kindergarten must have completed Education 331, Early Childhood Education, before registering for student teaching.

Suggested curriculum in elementary education:

Freshman Year

Engl 101-102-103—Freshman Composition 3 3 3
Gen 125-126-127—Science for Elementary Teachers 3 3 3
Speech 111—Principles of Speech 3
Psych 110—Introduction to Psychology 4
Gen. 151-152-153—Introduction to Humanities 3 3 3
Geog 101—Elements of Geography 5
HPE 106—Physical Education 1 0 1
ROTIC 101-102-105—Military or Air Science 0 0 2
or 0 0 2
16–18 16–18 16–18

Sophomore Year

Educ 200—Orientation to Education 2
Educ 202—The Elementary School Child 1
Music 122–123—Music Educ in Elem Schools 3
Math 150—Theory of Arithmetic 3
Psycho 220—Child and Adolescent Psych 5
HPE 190—First Aid 3
Hist 251-252—United States History 4
Pol Sci 101—Intro. to Am. Govt. 4
Math 220—Introductory Geometry 4
HPE 100—Physical Education 2
or 1 1 1
16–18 15–17 17–19

Junior Year

Art 303–304—Elementary School Art 3 3 3
Geog 304—The Child and the Curriculum 5
Gen. 306—Conservation 5
Educ 340—Children’s Literature 3
HPE 320—Teaching in the Elem School 3
Social Science Electives 5
HPE 375—School Health Problems 5
Electives 3 4
16 17 15

Senior Year

Educ 404—Student Teaching: Elementary 15
Electives—Curriculum Foundations 3
16 16 16

RECOMMENDATIONS FOR MONTANA TEACHING CERTIFICATION. Montana State University recommends that students 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 before the student can receive a certificate. Students who expect to teach in states other than Montana should investigate specific requirements because there are differences in the certification process.

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 showing that the holder has completed a four-year course of elementary school education.

2. Specific requirements in general education that have particular reference to teaching areas in the elementary grades.

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

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

Freshmen year: Psych 110 (not counted among the 24 credits required for secondary education).

Sophomore year: Educ 200, 2 credits.

Junior year: Educ 205, 4 credits.

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

SEQUENCE OF CERTIFICATION COURSES IN ELEMENTARY EDUCATION.

Since certification for teaching at the elementary level is based solely upon the Bachelor’s Degree in Elementary Education, see the preceding section on preparation for teaching in the elementary grades for requirements.

Montana State University does not offer a two-year diploma program leading to provisional elementary certification.

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

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

PREPARATION FOR SCHOOL LIBRARIANS. The library service program is designed to train school and teacher-librarians to meet the requirements of the Northwest Association of Secondary and Higher Schools and of the State of Montana. The minimum requirement for some of the courses is 25 credits. The student planning a more extended program should consult the library service advisor for advice on additional courses.

SPECIAL REQUIREMENTS FOR THE MASTER OF ARTS IN EDUCATION. In addition to the general requirements of the Graduate School (eight hours of English language requirement), candidates must complete a minimum of 30 credits of cognate work based on the minimum of nine credits. Such courses work may not include courses that carry a dual listing shared by Education and any other school or department, and may not include any course that is primarily 12 credits with techniques or training in specific skills. The candidate will present a thesis for which 6 to 9 credits may be assigned.

SPECIAL REQUIREMENTS FOR THE MASTER OF EDUCATION DEGREE. Candidates must have completed two years of satisfactory teaching experience before the degree is conferred. At least 10 credits of course work offered must have been completed follow-
ing the two years' teaching experience. All candidates for the Master of Education degree must also complete a minimum of 15 resi-
dence credits in graduate work in Education. The total number of credits in Education taken as undergraduate and graduate credit shall not be less than 54.

Two programs leading to the Master of Education degree are available:

A. Master of Education With Professional Paper. Candidates
for this degree must complete 45 credits of graduate work, including
credit in Methods of Educational Research (Education 206 or equiv-
alent), and complete a minimum of 15 credits of work in the school
minimum of three courses (see requirements for Master of Arts in Education).

The candidate must prepare a professional paper for which 3 to
6 credits may be allowed. This paper should involve a practical
problem growing out of the student's administrative or teaching
interest and should be planned in consultation with those re-
quired of an acceptable thesis. Two copies of this paper must be
submitted to the Dean of the Graduate School.

Candidates electing this program leading to the Master of Educa-
tion degree must take examinations covering the field of education
and the professional paper. Arrangements for these examinations
will be made by the Dean of the School of Education.

B. Master of Education Without Professional Paper. Can-
didates who choose not to do the professional paper will be required
to offer a total of 54 graduate credits, including Methods of Educa-
tional Research (Education 206 or equivalent) and not less than 15
credits of cognate work. They will take examinations covering
the field of education—such examinations to be arranged by the Dean
of the School of Education.

MASTER OF ARTS IN GUIDANCE AND COUNSELING, and
MASTER OF ARTS OR MASTER OF SCIENCE IN TEACHING. See
statement under Graduate School.

FOR UNDERGRADUATES
For explanation see Index under "Symbols"

200 ORIENTATION TO EDUCATION 1Q A W S Su 2 Prereq
Educ 116 Teaching as a profession of The American public school
and its purposes. Problems, issues, and trends in education today.

202 THE ELEMENTARY SCHOOL CHILD 1Q A W S S 5, Su 3
Prereq 200 and Psy 230. 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 school environment.

205 EDUCATIONAL PSYCHOLOGY 1Q A W S 4 Prereq
200 and Psy 110. The growth and developmental characteristics
of adolescents. Psychological foundations of learning in the junior and
senior high schools.

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

301-302-303 THE CHILD AND THE CURRICULUM 3Q 301-35,
302 W 3, 360, 303, Su 3 Prereq 202. Teaching in the
elementary school: (301) reading and the other language arts; (302)
arithmet; (303) science and the social studies.

305 SECONDARY SCHOOL TEACHING PROCEDURES 1Q
A W S 3, Su 3 Prereq 202. Methods of planning, presentation,
evaluation, and discipline. The materials of classroom teaching,
Demonstration, observation, and related activity involving student
participation.

311 ADMINISTRATION OF THE SMALL PUBLIC AND COL-
LEGE LIBRARY 1Q A 4 Prereq c/l. Objectives of library service,
library routines and procedures, library buildings and equipment,
the library's place in governmental organization, library extension
work.

404 STUDENT TEACHING: ELEMENTARY a/q 1R-15 Prereq
Educ 200, 202, 301, 302, 303, 240, Sophomore Observation Experi-
ience, and completion of course 200. Methods of classroom
Teaching. Student teaching is a full day's work for a complete quarter
and, although some observation and participation is included, the
main emphasis is upon the ‘‘real work’’ of teaching. All candidates
in many of the regular duties and responsibilities of a teacher as can be
included.

405 STUDENT TEACHING: SECONDARY a/q 1R-10 Prereq
Educ 200, 202, 305, Sophomore Observation Experience, and
有权 of Director of Student Teaching. Classroom teaching at the second-
ary level. Student teaching is full day's work for a period of six
weeks, and is preceded in the professional quarter by Educ 202.
Secondary School Teaching Procedures 5 hours. Although some
observation of past teaching is included, emphasis is placed
upon responsible student teaching. It includes as many of the regu-
lar duties and responsibilities of a teacher as can be included.

407 CURRICULUM FOUNDATIONS 1Q A W S Su 3 Prereq
404 or 405 or consent of Director of Secondary School Teaching.
tics in curriculum planning and or-
ganization in the secondary and elementary school; historical back-
ground of curricular foundations.

415 LIBRARY PRACTICE 1Q A W S Su 5 Prereq 20 or more
hours in Library Service and consent of Director of Library Service.
The student performs library routines in a school, public, or col-
lege library under the supervision of a trained professional librarian.
Weekly meeting with Director of Library Service.

FOR UNDERGRADUATES AND GRADUATES

311 SUPERVISION AND TEACHING OF THE LANGUAGE
ARTS 1Q W Su 3 Prereq teaching experience and/or Analysis
of current methods in the teaching of language arts in the elemen-
tary school. Not a course including 15 credits. 

312 SUPERVISION AND TEACHING OF READING 1Q W
Su 3 Prereq teaching experience and c/l. Characteristics of good read-
program and their development in accordance with present day
understanding of children's reading processes.

314 SUPERVISION AND TEACHING OF SOCIAL STUDIES
IN THE ELEMENTARY SCHOOL 1Q Su 3 Prereq teaching experience.
Curriculum trends, instructional practices, teacher-pupil planning and
evaluation, unit organization, integration with other
areas, and use of community resources.

317 SUPERVISION AND TEACHING OF ARITHMETIC 1Q
Su 3 Prereq teaching experience or c/l. Curriculum trends, instruc-
tional materials, research and supervisory techniques relevant to
a modern elementary school arithmetic program.

318 SUPERVISION AND TEACHING OF SCIENCE IN THE
ELEMENTARY SCHOOL 1Q Su 3 Prereq Gen 120-126-127 or — and
num 202. Curriculum planning and development and use of instruc-
tional materials, teaching procedures.

339 TEACHING OF CONSERVATION 1Q S Su 3 Prereq
Gen 120 and 12 credits in Educ and c/l. Methods and
equipment of science teaching programs
and materials. Integral part of summer Conservation Education
Workshop.

337 PROBLEMS IN CONSERVATION EDUCATION 1Q
Su Prereq Gen 120 and 12 credits in Educ and c/l. Prob-
lems in selection, and evaluation of materials for the teaching of
conservation.

331 EARLY CHILDHOOD EDUCATION 1Q S Su 3 Prereq
12 credits in Elementary Education or teaching experience, and c/l.
Theories and techniques of teaching in the kindergarten and primary
grades as a unified program.

334 REMEDIAL READING 1Q S Su 3 Prereq a basic course
in teaching of reading or teaching experience, and c/l. Diagnosis and
remedial work in reading; remedial reading, and reading at college
levels. Methods and materials for specialists, classroom
teachers, and administrators who wish to initiate remedial pro-
gograms.

342 SCHOOL LIBRARY IN TEACHING 1Q A W S Su 3. The
use of books and libraries. The use of library materials
in subject enrichment and unit planning. May not be counted in
Librarianship.

343 ORGANIZATION AND ADMINISTRATION OF THE
LIBRARY SCHOOL. 1Q A 4, Su 3. Objectives of school library
service, routines, procedures, quarters, equipment, and costs.
For part-time teacher-librarians without library training programs
and materials.

344 CATALOGING AND CLASSIFICATION 1Q W 4, Su
3 Prereq 341 or 343. Principles of classification and cataloging
for small libraries.

345 MATERIALS SELECTION AND BIBLIOGRAPHY 1Q
W 4, Su 3 Prereq 341 or 343. Book selection and order work for
the small library. Book lists.

346 LIBRARY REFERENCE MATERIALS 1Q S 4, Su 3
Prereq 341 or 343. Basic reference books and bibliographies
found in small libraries; reference methods, citation, and bib-
liographic form.

347 AUDIOVISUAL COMMUNICATION A W 4. Classroom
utilization of sound and visual teaching materials; intensive labora-
tory work including 16mm, filmstrip, slide, overhead, opaque, record
player, tape recorder and related instructional material.

369 EDUCATIONAL SOCIOLOGY 1Q A Su 3. Education in
modern societies. The role of Education in Contemporary life; the school as a social
institution; problems of American life which affect and are affected
by the work of the public schools.

379 THE TEACHER AND SCHOOL ORGANIZATION 1Q S
Prereq teaching experience and/or Analysis of the problems of
organization, management, and financing of American Public
Education with special emphasis on personnel problems, community
relations, and organizational structure of schools.

389 METHODS OF TEACHING SECONDARY SCIENCE 1Q
A W S Su 3 Prereq 12 credits in Secondary Education, a science minor
and c/l. Problems involved in development of an adequate high
school science program; curriculum methods, instructional materials.

425 SAFETY EDUCATION AND DRIVER TRAINING 1Q S
Su Prereq 12 credits in Education and Driver Training.
Confidential experience in teaching driving and
theoretical aspects of driver education. General safety education.
To include the instruction of teachers for Safety Education and Driver
Training courses in high schools. Offered in cooperation with the
American Automobile Association and the Montana Highway Patrol.

426 ADVANCED SAFETY EDUCATION AND DRIVER TRAIN-
ING 1Q S Prereq a basic course in driver training or experience
in teaching driver training. For students who have had experience
in this field. General safety education. Offered in cooperation with
the American Automobile Association and the Montana High-
way Patrol.
432 M E T H O D S  O F  T E A C H I N G  S O C IA L  S T U D IE S  I N  S E C O N D ­
ARY SCHOOLS IQ W S Su 3
Prereq 12 credits in Education. General trends in instruction; methods of evaluating and improving school library services to teachers and students.

433 LIBRARY WORKSHOP IQ W S Su 3 Prereq 9 credits in Library Science and committee work; individual work on problems of special interest within the workshop topic.

434 LIBRARY SEMINAR 1Q a/q V 1-5 R-1 Prereq 20 or more hours in Library Science and consent of the Director of Library Service. Independent study and discussion of individual projects.

435 GUIDANCE IN THE ELEMENTARY AND SECONDARY SCHOOLS IQ W S Su 4 Prereq 201-202-203 or 306, or teaching experience. Orientation to the need, organization, and methodology of guidance services in the elementary and secondary schools.

436 EDUCATIONAL MEASUREMENT 1Q A W S Su 4 Prereq 12 credits in Education. Basic principles of measurement of educational outcomes in elementary and secondary teaching; application of statistical techniques to educational data; and standardization tests; construction and use of teacher-made tests.

437 OCCUPATIONAL INFORMATION IQ W S Su 3 Prereq 450 or= . Sources, including job analysis and surveys; occupational trends, information filing system, evaluation, selection, and use of occupational information.

438 TECHNIQUES OF COUNSELING 1Q W S Su 3 Prereq 450, 452 and c/i. Evaluation of guidance instruments and techniques, and years of data; counseling and interview procedures; sources of referral.

439 HISTORICAL FOUNDATIONS OF AMERICAN EDUCATION 2Q W S Su 3. Historical and philosophical backgrounds of present day issues and problems in Education. Enter either quarter. (461) to 1650; (462) 1650 to present.

440 INDEPENDENT STUDY a/q V R-10 Prereq c/o. Selected topics under the guidance of a staff member. Term papers may be required.

441 SEMINAR a/q V R-10 Prereq 12 credits in Education and c/i. Group analysis and discussion of individual projects. Application to specific teaching situations where possible.

FOR GRADUATES

505 INTERNSHIP 2Q V 1-6 R-4. Supervised field experiences in administration, guidance, special education, curriculum. (Admission by application only.)

531 ELEMENTARY CURRICULUM 1Q S 4, Su 3. Major trends in curriculum content, group placement, organization of materials, and evaluation of outcomes.


533 CURRICULUM WORKSHOP 1Q Su V R-10 Prereq teaching experience and c/i.

534 ADVANCED EDUCATIONAL PSYCHOLOGY 1Q W Su 3. General behavior and learning; motivation, interference reduction, reinforcement and teaching for permanence and transfer. Current research in field.

535 PRACTICE IN GUIDANCE 1Q S Su V 2-4 Prereq 455 or and c/i. Supervised practice in testing and counseling, and observation in cooperating schools. Seminar discussions weekly.

536 GUIDANCE INSTITUTE 1Q Su 15 Prereq 15 semester hours (or 22 quarter hours) of credits in counseling and guidance with a B average or better, and not more than 30 semester hours (45 quarter hours). Guidance practices and techniques for teachers charged with guidance responsibilities.

537 COMPARATIVE EDUCATION 1Q S Su 3. A comparison of the educational systems of the United Kingdom, France, Germany, Italy, the Soviet Union, Japan and the United States.

538 PHILOSOPHY OF EDUCATION 1Q A Su 3 Leading philological points of view in Education; concepts of the individual, society, the educative process, and the role of education.

539 SOCIOLOGICAL FOUNDATIONS OF AMERICAN EDUCATION 1Q W Su 3. Prereq 360 or 564 or = and c/i. The background of education in its broadest sense as found in the religion, the economic system, and other social institutions.

540 EDUCATIONAL ADMINISTRATION 1Q A Su 4 Prereq teaching experience. Administrative relationships at federal, state, and local levels; responsibilities of county and district school superintendents.

541 ELEMENTARY SCHOOL ADMINISTRATION 1Q W Su 3 Prereq teaching experience. Problems in administering the elementary school. Role and competencies of the elementary principal.

542 SECONDARY SCHOOL ADMINISTRATION 1Q W Su 3 Prereq teaching experience. Administration of secondary education. Role of the principal and areas of competency.

543 SCHOOL SUPERVISION 1Q S 4, Su 3 Prereq teaching experience. Group analysis and discussion of specific problems and assignments of assigned leaders for improving instruction and promoting in-service growth of personnel.

544 SCHOOL FINANCE 1Q S Su 3 Prereq teaching experience. Sources of school revenues; related costs, inequalities, legal limitations, and proper expenditures; relationship of foundation programs and district reorganization.

545 PLANNING THE SCHOOL BUILDING PROGRAM 1 Q V 24 Prereq 570 or = and c/i. Procedures in determining building needs, site selection, planning the building, financing, and supervision of construction.

546 LEGAL BASIS OF PUBLIC EDUCATION 1Q Su 3 Prereq 570 or = and c/i. Legal concepts of education in the United States; legal implications of the concept of education as a state function. Legal problems affecting pupils, parents, teachers, administrators, and school board members in relation to the school.

547 PERSONNEL ADMINISTRATION 1Q Su 3 Prereq 570 and c/i. Problems of certified and non-certified personnel (not student); selection, in-service training, assignment, supervision, and welfare.

548 INDEPENDENT STUDY a/q V R-10 Prereq consent of adviser and instructor. Selected topics under the guidance of a staff member.

549 SEMINAR a/q V R-10 Prereq c/i. Group analysis of problems in specific areas of education.

550 METHODS OF EDUCATIONAL RESEARCH 1Q A Su 4. Research problems; their statement, organization, techniques, tabulation of material, and statistical concepts necessary for interpretation of research data.

551 EDUCATIONAL STATISTICS 1Q A Su 4 Prereq Math 125, Educ 452 and 560 or concurrent registration therein and c/i.

552 RESEARCH a/q V R-15 Prereq c/i.

553 THESIS OR PROFESSIONAL WRITING a/q V R-9.

554 DISSERTATION a/q V R-30.

EDUCATION COURSES TAUGHT BY OTHER SCHOOLS AND DEPARTMENTS

The following courses offered in other Schools and Departments of Montana State University may be presented for credit in the School of Education. Descriptions of these courses may be found under the Department or School which teaches the course.

B Ad 380 Methods of Teaching Shorthand.
B Ad 381 Methods of Teaching Typewriting.
B Ad 382 Methods of Teaching Bookkeeping and Basic Business.
B Ad 383 Gregg Shorthand Theory for Teachers.
B Ad 384 Methods of Teaching Bookkeeping.
B Ad 385 Methods in Teaching Gregg Shorthand.
B Ad 386 Methods in Teaching Typewriting.
B Ad 585 Unit Courses in Business Education.
Eng 481 Methods of Teaching English.
For L 391 Methods of Teaching Foreign Languages.
For L 401 Foreign Language Workshop.
HAEPE 335 Methods of Teaching Physical Education.
HAEPE 373 School Health Problems.
H Ec 321 Methods of Teaching Home Economics.
### COURSE REQUIREMENTS

**Teaching Major and Minor Fields**

Students who wish to qualify for the Secondary State Teaching Certificate must, according to the regulations of the State Department of Public Instruction which were in effect when this catalog was printed, complete a minimum of 45 credits in a major teaching field and a minimum of 30 credits in a minor teaching field. In case the pattern of teaching majors and minors is changed by the State Department of Public Instruction, 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 in a major 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 teaching major or minor.

#### ART

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<tr>
<th>Requirement</th>
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<td>Art 125-126—Color and Design</td>
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<td>Art 130—Sculpture</td>
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<td>3</td>
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<tr>
<td>Art 150—Painting</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Art 151—Life Drawing</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Art 201-223-225—History of Art</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Art 307—Methods of Teaching Secondary</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

7 credits from 4 credits from the following: the following:

- Electives: Art 127 or 128—Crafts 2 2
- Art 129—Ceramics 2-4 2
- Art 133-134—Printing Arts 2-4 2
- Art 139—Watercolor 3 3
- Art 151—Life Drawing 3 1-2

#### BUSINESS ADMINISTRATION

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Teaching Major</th>
<th>Teaching Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Courses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B Ad 103—Advanced Typewriting</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>B Ad 104-105-110—Stenography</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>B Ad 106—Office Machines Practice</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>B Ad 193—Beg Secretarial Pract.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>B Ad 194—Records Management</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>B Ad 201-202—Elementary Accounting</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>B Ad 300—Methods of Teaching shorthand, Typewriting and Transcription</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>B Ad 301—Methods of Teaching Bookkeeping and Basic Business</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>B Ad 304—Gregg Shorthand Theory for Teachers</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

7 credits from the following:

- B Ad 302—Principles of Insurance 3
- B Ad 307-308—Business Law 6
- B Ad 360—Marketing Principles 4
- B Ad 369—Office Management 3
- Econ 201-202-203—Principles of Economics | 9 |
- Econ 301—Money and Banking 4

#### DRAMA (Minor Only)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drama Electives (may not include 101)</td>
<td>(30 credits)</td>
</tr>
</tbody>
</table>

#### ECONOMICS AND SOCIOLOGY (Minor Only)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soc 101—Introductory Sociology</td>
<td>3</td>
</tr>
<tr>
<td>Soc 102—Social Problems</td>
<td>3</td>
</tr>
<tr>
<td>Edu 428—Methods of Teaching Social Studies in the Secondary Schools</td>
<td>3</td>
</tr>
<tr>
<td>Electives: Soc 302, 304 or 402</td>
<td>3-5</td>
</tr>
</tbody>
</table>

### ECONOMICS (Broadfields Major)

(75 credits)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 201 (or 308) for Drama majors</td>
<td>3</td>
</tr>
<tr>
<td>Engl 211-213—Intro to Major British Writers</td>
<td>6</td>
</tr>
<tr>
<td>Engl 212-233—Intro to Major American Writers</td>
<td>6</td>
</tr>
<tr>
<td>Engl 342 or 343—Shakespeare and Contemporary</td>
<td>5</td>
</tr>
<tr>
<td>Engl 371—The English Language</td>
<td>3</td>
</tr>
<tr>
<td>Engl 381—Literature for the High School Teacher</td>
<td>3</td>
</tr>
<tr>
<td>Engl 481—Methods of Teaching English</td>
<td>4</td>
</tr>
<tr>
<td>Engl 490—Seminar</td>
<td>2</td>
</tr>
<tr>
<td>Engl 490—Seminar</td>
<td>2</td>
</tr>
<tr>
<td>Electives: From Dept. of English</td>
<td>13</td>
</tr>
<tr>
<td>Spch 111 or 261—Principles of Oral Interpretation</td>
<td>5 or 12</td>
</tr>
<tr>
<td>Spch 291—The Teaching of Speech</td>
<td>3</td>
</tr>
<tr>
<td>Jour 290—History and Principles of Journalism</td>
<td>3</td>
</tr>
</tbody>
</table>

#### 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.

All students preparing to do practice teaching in a modern foreign language must take a proficiency examination administered by the Department of Foreign Languages. Students failing to pass this examination will not be recommended to the School of Education as qualified to do practice teaching.

Modern Languages (French, German or Spanish)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>F L 101-102-103—Elementary</td>
<td>15</td>
</tr>
<tr>
<td>F L 203—Advanced</td>
<td>4</td>
</tr>
<tr>
<td>F L 217—Review Grammar and Composition</td>
<td>3</td>
</tr>
<tr>
<td>F L 309—Conversation</td>
<td>4</td>
</tr>
<tr>
<td>F L 301—Survey of Literature</td>
<td>6</td>
</tr>
<tr>
<td>Engr 101—Methods for Foreign Language (may be taken for Edu. credit)</td>
<td>3</td>
</tr>
</tbody>
</table>

### ELECTRICAL ENGINEERING

(34-36 credits)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 113—Social Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>Econ 201-202-203—Principles of Economics</td>
<td>5</td>
</tr>
<tr>
<td>Econ 301—Money and Banking, or Econ 311—Intermediate Econ Analysis</td>
<td>4</td>
</tr>
<tr>
<td>Soc 101—Introductory Sociology</td>
<td>3</td>
</tr>
<tr>
<td>Soc 102—Social Problems</td>
<td>5</td>
</tr>
<tr>
<td>Educ 428—Methods of Teaching Social Studies in the Secondary Schools</td>
<td>3</td>
</tr>
<tr>
<td>Electives: Soc 302, 304 or 402</td>
<td>3-5</td>
</tr>
<tr>
<td>CLASSICAL LANGUAGES (Latin)</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--</td>
</tr>
<tr>
<td><strong>Required Courses:</strong></td>
<td><strong>Teaching Minor</strong></td>
</tr>
<tr>
<td>F. L. 101-102-103—Elementary</td>
<td>15</td>
</tr>
<tr>
<td>F. L. 213—Intermediate</td>
<td>4</td>
</tr>
<tr>
<td>F. L. 215—Advanced</td>
<td>4</td>
</tr>
<tr>
<td>F. L. 217—Review Grammar and Composition</td>
<td>3</td>
</tr>
<tr>
<td><strong>Electives:</strong></td>
<td><strong>Teaching Minor</strong></td>
</tr>
<tr>
<td>F. L. 401—Seminar</td>
<td>4</td>
</tr>
</tbody>
</table>

HEALTH AND PHYSICAL EDUCATION FOR MEN

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

**Required Courses:**
- HaPE 198—Intro to Physical Education 3
- HaPE 199—First Aid 2
- HaPE 210, 211, 321-322—Coaching—Football, Basketball, Track 3
- HaPE 212-213, 321-322—Officating—Football, Basketball 4
- HaP 240—Care and Prevention of Athletic Injury 2
- HaPE 326—Dance Methods & Materials 2
- HaPE 335—Methods of Tchg. Phys. Ed. 3
- HaPE 355—Organization and Administration 4
- HaPE 373—School Health Problems 4
- HaPE 389—Applied Anatomy 3
- HaPE 465—Testing in Phys. Ed. 3

**E lectives:**
- Other courses in the department 3

**Notes:**
1. Majors and Minors substitute courses 115-116-117, 117-119-120 for course 101 (6 quarters, 6 credits) required of other lower division students.
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 Minor</th>
<th>Teaching Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>(48 credits)</td>
<td>(33 credits)</td>
</tr>
</tbody>
</table>

**Required Courses:**
- HaPE 198—Intro to Physical Education 3
- HaPE 199—First Aid 2
- HaPE 231-232—Officating—Volleyball, Basketball 4
- HaPE 301-302—Teaching of Team Sports for Women; Teaching of Individual Sports for Women 4
- HaPE 324-325-326—Dance Methods and Materials 6
- HaPE 335—Methods of Tchg. Phys. Ed. 3
- HaPE 355—Organization and Administration 4
- HaPE 373—School Health Problems 4
- HaPE 375—Personal Health Problems (Women) 2
- HaPE 389—Applied Anatomy 2
- HaPE 465—Testing in Phys. Ed. 3
- HaPE 499—Teaching of College Physical Education Activities 2

**E lectives:**
- Other courses in the department 2

**Notes:**
1. Majors and Minors substitute courses HPE 115-116-117-118-119 for course 101 (6 quarters, 6 credits) required of other lower division students.
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.
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 adviser in the School of Education.

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

BIOLOGICAL SCIENCE

<table>
<thead>
<tr>
<th>Required Courses:</th>
<th>Teaching Major</th>
<th>Teaching Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>(49 credits)</td>
<td>(31 credits)</td>
<td></td>
</tr>
<tr>
<td>Microb 200—General Microbiology</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Bot 121–122—General Botany</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Bot 123—Local Flora</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Bot 226 or 341—Plant Phys or Morph of That</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Gen 200—Conservation of Natural and Human Resources</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Zool 104—Elementary Zoology</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Zool 105—Elementary Zoology</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Zool 106—Field Zoology</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Zool 201—Comp Vertebrate Anatomy</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Zool 202—Human Physiology</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

Students who offer the teaching major in biological science must have taken 13 credits of chemistry.

CHEMISTRY

<table>
<thead>
<tr>
<th>Teaching Major</th>
<th>Teaching Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>(45 credits)</td>
<td>(32 credits)</td>
</tr>
<tr>
<td>Chem 121–2–3—College Chemistry</td>
<td>15</td>
</tr>
<tr>
<td>Chem 245—Quantitative Analysis</td>
<td>4</td>
</tr>
<tr>
<td>Chem 261–2—Organic Chemistry</td>
<td>10</td>
</tr>
<tr>
<td>or Chem 325—Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>or Chem 371—Physical Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>or Chem 384—Physiological Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>or Chem 481—Elemental Biochemistry</td>
<td>4</td>
</tr>
</tbody>
</table>

Elective Chemistry courses numbered over 360 4–7

In the minor the following substitutions will be allowed: Chem 160 for Chem 261 and Chem 262 for Chem 325 or Chem 370.

GENERAL SCIENCE*

<table>
<thead>
<tr>
<th>(Broad Fields Major Only)</th>
<th>(75 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bot 121–2—General Botany</td>
<td>10</td>
</tr>
<tr>
<td>Bot 123—Local Flora</td>
<td>3</td>
</tr>
<tr>
<td>Chem 100—General Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>Gen 200—Conserv. of Nat. and Human Resources</td>
<td>3</td>
</tr>
<tr>
<td>Geol 101—Introduction to Geology</td>
<td>5</td>
</tr>
<tr>
<td>Phys 111–2–3—General Physics</td>
<td>15</td>
</tr>
<tr>
<td>Zool 101—General Zoology</td>
<td>5</td>
</tr>
<tr>
<td>Zool 106—Field Zoology</td>
<td>3</td>
</tr>
<tr>
<td>Zool 200—Human Physiology</td>
<td>3</td>
</tr>
<tr>
<td>Gen 111—Descriptive Astronomy</td>
<td>5</td>
</tr>
<tr>
<td>Microb 100—Elementary Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>5</td>
</tr>
</tbody>
</table>

*Does not qualify for teaching chemistry or physics

GEOLGY

<table>
<thead>
<tr>
<th>(Minor Only)</th>
<th>(33 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geol 101–2—Introduction to Geology</td>
<td>10</td>
</tr>
<tr>
<td>Geol 130—Aerial Photos and Geo. Maps</td>
<td>4</td>
</tr>
<tr>
<td>Geol 130—Field Methods</td>
<td>3</td>
</tr>
<tr>
<td>Geol 200—General Paleontology</td>
<td>4</td>
</tr>
<tr>
<td>Geol 311–2–3—Mineralogy and Petrology</td>
<td>12</td>
</tr>
</tbody>
</table>

*Available only if accompanied by a teaching minor in English or by another teaching major.
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 English which he feels to be most important to his future career.

Literature is stressed for those who wish to do graduate work, teach at the college level, travel, write about books, teach in high schools, 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 wish to combine these 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.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN ENGLISH. In addition to the general requirements for graduation listed earlier in the catalog, the student seeking the degree of Bachelor of Arts with a major in English must complete a minimum of 60 credits in the major but not more than 60 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 preparing to become secondary classroom teachers. In the junior year the student should have decided definitely which of the schedules he is to follow.

Senior in Schedules A and C must present for graduation a paper, critical or scholarly, prepared in English 450-459. Students in Schedule B may substitute for this a body of creative writing.

All students majoring or minoring in English, whether their degrees have been 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.

CORE CURRICULUM

I. All prospective English majors are expected to take, in their freshman year, the Introduction to Humanities (General 151-152-153), 5 credits of which will be counted toward the English major. (General 360 may be counted as English credit toward the 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 the other from English 211-212-213, and 231-232-233.

SCHEDULE A: LITERATURE

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

English 385 (Chaucer); 3 credits from 401-402-403; 406-409. The remaining credits required for the completion of the minimum 50 may be selected from courses in English, American, or General Literature numbered above 290. The maximum of courses up to 60 credits may include 305 and 401-402-403.

SCHEDULE B: CREATIVE WRITING

Students whose major interest is in writing of fiction and poetry should supplement the core courses with the following minimum. This schedule is aimed at helping the student toward individual expression by giving him theoretical and practical working knowledge of modern techniques, and a foundation in critical self-appraisal.

REQUIREMENTS. In addition to the basic departmental requirements:

SOPHOMORE YEAR

English 202-203; 3 credits from 211-212-213; 3 credits from 231-232-233.

JUNIOR AND SENIOR YEARS

English 301-302-303, 305; 3 credits from 310-311-312, 341, 491-492-493; 491-492-493; 490. The credits above in 55 credits above may be taken from the courses in Literature numbered above 300.

SCHEDULE C: TEACHING

Students planning to teach English in high school should supplement the core courses with one of the following options:

OPTION I

English 211, 213, 232, 233, 371, 381, 481, 498, 499; Speech 111 or 261.

Electives: 10 credits in the related fields below. Other electives may be chosen from the Department of English, from courses in General Literature numbered above 200, and from the Related Fields. Among electives must be one advanced course in American Literature and one advanced course in British Literature.


Students selecting this option must qualify for a teaching minor in order to meet Montana State teaching certification requirements.

OPTION II

English 211, 213, 232, 233, 371, 381, 481, 498, 499; Speech 111 or 261.

English electives: 13 credits (must include one advanced course in British Literature, one advanced course in American Literature, and may include General 380 and 5 credits from General 151-152-155).

Related Fields Requirements: Speech 321; Journalism 290, 316; Drama 223, 321.

10-12 credits of electives chosen from ONE of the following Related Fields: Drama, Journalism, Speech.

Students following Option II must take a minimum of 45 credits in English and 30 credits in Related Fields as above. This program qualifies the student for the Montana State teaching certificate in English (Broad Fields). This certificate does not require a teaching minor as a teaching requirement.

III. The foreign language requirement listed earlier in the catalog must be satisfied. Art 231-232-233; Music 135-136-137; Psychology 231-232-233; Sociology 231-232-233; Anthropology 231-232-233; English 201-202-203; 5 credits from 204-214; plus at least two quarters of study in sociology and history (especially 241-242-245) are strongly recommended.

HONORS. Special comprehensive examinations must be taken and special Honors examinations submitted by all students working for honors in English. An incoming senior, by the beginning of his last quarter, must have an average of 3.3 for all work done up to this time, and an average of 3.7 for English and foreign languages. (Each English course must have an index of 3.1 for all credits registered for in his entire record as well as in his major field to become a candidate for honors.)

SPECIAL REQUIREMENTS FOR THE MASTER OF ARTS IN ENGLISH. In addition to the general requirements of the Graduate School, candidates are required to take nine credits of 500-501-502 and two credits of 600, unless they offer 498 or 499 as an option. The candidate will present a thesis for which 6 to 9 credits may be allowed.

COMPOSITION, LANGUAGE AND LITERATURE FOR UNDERGRADUATES

For explanation see Index under "Symbols"

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

101-102-103 FRESHMAN COMPOSITION 3Q A W S Su 3. Students who receive a grade of "A" in 103, and with 10 credits of English and 6 credits of English, 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. Prereg c/l.

106 CREATIVE COMPOSITION 1Q W S 3 Prereg 102 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 INTRODUCTION TO MAJOR BRITISH 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) Chaucer through Shakespeare. (212) Dryden through Blake. (213) Wordsworth through Yeats.

231-232-233 INTRODUCTION TO MAJOR AMERICAN WRITERS 3Q A W S Su 3. Enter any quarter. A student with 6 credits of American Literature cannot take this course. (231) Franklin through Thoreau. (232) Hawthorne through Twain. (233) James through Hemingway.


304 PROBLEMS IN COMPOSITION 1Q A W S 3. Open to any major. Common problems in writing, including: organization, development, sentence structure, word usage, and tone. Students also do special work in their weakest areas.

308 THE WRITING OF DRAMA (See Drama).

381 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 TECHNIQUES OF THE MODERN NOVEL 1Q A 3. The intentions and methods of such innovators as Conrad and Faulkner. Author counts variable. Primarily for the advanced writing schedule, but also to aid the reading awareness of advanced students in the literary and teaching schedules.


307 Aeschylus to Ibsen. (308) Ibsen to O'Neill. (309) Contemporary Drama.


331-332-333 STUDIES IN AMERICAN LITERATURE 3Q A W S Su 3. Prereq 9 cr in literature. Major American writers. (331) The American Literature to 1850; (332) Late Nineteenth and Early Twentieth Centuries; (333) Contemporary American writing.


341-342-343 SHAPEEKRE 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, Renaissance ideology, and Shakespeare's artistic development.

344-345 THEORIES OF DRAMA 2Q W S Su 2 e/y. Enter either quarter. Prereq 1 quarter of 307-308-309. The critical literature from Aristotle to contemporary critics and the artistic plays from Aeschylus to the modern dramatists. (344) Tragedy. (345) Comedy.

390 INTRODUCTION TO LINGUISTICS (See General Courses).


392-393-394 NINETEENTH CENTURY BRITISH LITERATURE 3Q A W S Su 3. Enter any quarter. Prereq 12 cr of literature.


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

401-402-403 ADVANCED CREATIVE WRITING 3Q A W S 3, Su 1. Enters any quarter. Prereq 301-302-303. Fiction, with emphasis on the novel, although work in the short story may be continued with c/1. (Graduate students may substitute 1 q of Drama 541.)

411 MAJOR WRITERS 1Q A W S 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 POETRY 3Q A W S 3. Offered 2Q each year. Prereq 9 cr of literature. A chronological survey, with emphasis on close reading of representative works by major British and American authors.

431-432-433 PROBLEMS IN AMERICAN LITERATURE 3Q A W S Su 3 B-18. Enter any quarter. Prereq 12 cr of literature. Special genres, figures, and intellectual currents studied in depth.

481 METHODS OF TEACHING ENGLISH 1Q S 4, Su 3. Objectives, materials and organization of the curricula and in the grades 7 through 12; observation of expert teachers; some practice in teaching and correcting student themes. Does not count in curricula A and B. Credit not allowed for this course and the identical course, Edu 481.


495 INDEPENDENT STUDIES 3Q A W S Su 2 R-8. Su 2 R-4. Special projects in particular areas of literature. For English seniors and graduate students, particularly seniors who are seeking honors.

497 SEMINAR: PROBLEMS IN ENGLISH LINGUISTICS 1Q S Su 3. Prereq Gen 380 or English 371. Subjects vary: linguistic problems in teaching reading and writing, in teaching English as a foreign language, and in phonemics, morphemics, and stylistics.

498-499 SEMINAR 2Q A W Su 2. First instruction and practice in research. Students in Schedule B take 499 only.

FOR GRADUATES

500-501-502 SEMINAR: PROBLEMS IN BRITISH LITERATURE Enter any quarter, V R-10. Students will be offered from various points of view: a period, a person, a genre.

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

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

699 THESIS a/q V R-6 to 9.

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.

Students of the modern languages are given an opportunity to supplement their classroom instruction with practice in a modern language laboratory.

The time needed to meet requirements for a major in one of the languages depends on language study prior to college entry, and concentration of studies in college. The department offers a Master of Arts degree as well as an undergraduate major in all the above listed languages except Greek, Italian and Russian.

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

HIGH SCHOOL PREPARATION. 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 160; those with two units, course 215; those with three units, courses numbered 300 or over.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN LANGUAGES. Not more than 60 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 standing. 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 catalog.

1. French 101 to 217 inclusive, or equivalent.
2. At least 19 credits from courses numbered 300 or over.
3. Four quarters, or equivalent, of another language.
4. Two quarters in history of Europe, chosen from the following: History 207, 208, 210, 215, 216, 311, 314, 318, 328.

FOR UNDERGRADUATES

For explanation see Index under “Symbols”

101 ELEMENTARY FRENCH 1Q A W Su 5.

102 ELEMENTARY FRENCH 1Q W Su 5, Prereq 101 or =.
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103 ELEMENTARY FRENCH 1Q A S Su 5. Prereq 102 or =.

111 FRENCH FOR ELEMENTARY TEACHERS 1Q a/q. Prereq c/l. Grammar, conversation, and methods of teaching French in the elementary school.

213 INTERMEDIATE FRENCH 1Q A W Su 4. Prereq 103 or =.

215 ADVANCED FRENCH 1Q W S Su 4. Prereq 213 or =.

217 FRENCH GRAMMAR REVIEW AND COMPOSITION 1Q A S Su 3. Prereq 215 or =.

FOR UNDERGRADUATES AND GRADUATES

300 FRENCH CONVERSATION 1Q a/q 2 R-4. Prereq 217.

301-302-303 SURVEY OF FRENCH LITERATURE 3Q A W S 2 Prereq 217.

305 ADVANCED FRENCH PHONETICS 1Q S Su 2. Prereq 217 or =.

311 MEDIEVAL FRENCH LITERATURE 1Q A 3 o/y. Prereq 217.

321 FRENCH RENAISSANCE 1Q W 3 o/y. Prereq 217.

331 17th CENTURY FRENCH LITERATURE 1Q S 3 o/y. Prereq 217.

341 18th CENTURY FRENCH LITERATURE 1Q A 3 o/y. Prereq 217.

351 19th CENTURY FRENCH LITERATURE 1Q S 3 o/y. Prereq 217.


FOR GRADUATES

699 THESIS a/q V R-15.

GENERAL LITERATURE

101 CLASSICAL MYTHOLOGY 1Q a/q 2. Deities and myths of the Greeks and Romans, with emphasis on those of most importance to Western literature and art.

221 FOREIGN LITERATURES IN TRANSLATION 1Q A W S Su 2. Reading of foreign authors in English translation. Periods and literatures vary from quarter to quarter. No knowledge of foreign languages necessary.

440 STUDIES IN COMPARATIVE LITERATURE 1Q a/q 3. The origin and dissemination of important literary ideas, trends, and movements.

GERMAN

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

1. German 101 to 217 inclusive, or equivalent.
2. At least 19 credits from courses numbered 200 or over.
3. Four quarters, or equivalent, of another language.
4. Two quarters in history of Europe, chosen from the following: History 297, 208, 216, 215, 216, 311, 314, 321, 322.

FOR UNDERGRADUATES

101 ELEMENTARY GERMAN 1Q A W Su 5.

102 ELEMENTARY GERMAN 1Q W S Su 5 Prereq 101 or =.

103 ELEMENTARY GERMAN 1Q A S Su 5 Prereq 102 or =.

111-112-113 GERMAN FOR ELEMENTARY TEACHERS 3Q a/q 2 Prereq c/l. Grammar, conversation, and methods of teaching German in the elementary school.

200 ELEMENTARY GERMAN CONVERSATION 1Q a/q 1 R-2 Prereq 103 or =. Primarily for majors and minors.

213 INTERMEDIATE GERMAN 1Q A W Su 4 Prereq 105 or =.

215 ADVANCED GERMAN 1Q W S Su 4 Prereq 213 or =.

217 GERMAN GRAMMAR REVIEW AND COMPOSITION 1Q A S 3 Prereq 215 or =.

FOR UNDERGRADUATES AND GRADUATES

300 GERMAN CONVERSATION 1Q a/q 2 R-4 Prereq 217.

301-302-303 SURVEY OF GERMAN LITERATURE 3Q A W S 2 Prereq 217.

341 18TH CENTURY GERMAN LITERATURE 1Q A 3 o/y Prereq 217.

351 19TH CENTURY GERMAN LITERATURE 1Q A 3 o/y Prereq 217.

491 SEMINAR 1Q a/q V 2-3 R-25 Prereq 217. Works of outstanding writers.

FOR GRADUATES

699 THESIS a/q V R-15.

GREEK

No major is given in Greek.

101 ELEMENTARY GREEK 1Q W Su 5.

102 ELEMENTARY GREEK 1Q S S Prereq 110.

103 ELEMENTARY GREEK 1Q A Su 3 Prereq 102.

213 INTERMEDIATE GREEK 1Q W 3 Prereq 103.

215 ADVANCED GREEK 1Q S 3 Prereq 213.

ITALIAN

No major is given in Italian.

101 ELEMENTARY ITALIAN 1Q A 5.

102 ELEMENTARY ITALIAN 1Q W 5 Prereq 101 or =.

103 ELEMENTARY ITALIAN 1Q S 5 Prereq 102.

213 INTERMEDIATE ITALIAN 1Q A 4 Prereq 103

215 ADVANCED ITALIAN 1Q W 4 Prereq 213.

217 ITALIAN REVIEW GRAMMAR AND COMPOSITION 1Q S 3 Prereq 215 or =.

LATIN

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

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

FOR UNDERGRADUATES

101 ELEMENTARY LATIN 1Q A Su 5.

102 ELEMENTARY LATIN 1Q W 5 Prereq 101 or =.

103 ELEMENTARY LATIN 1Q S 5 Prereq 102 or =.

213 INTERMEDIATE LATIN 1Q A Su 4 Prereq 103 or =.

215 ADVANCED LATIN 1Q W 4 Prereq 213 or =.

217 LATIN READINGS 1Q S 3 Prereq 215 or =. Works of outstanding Latin writers.

FOR UNDERGRADUATES AND GRADUATES

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

FOR GRADUATES

699 THESIS a/q V R-15.

ROMANCE PHILOLOGY

375 INTRODUCTION TO ROMANCE PHILOLOGY 1Q S 3 a/q 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 ELEMENTARY RUSSIAN 1Q A 5.

102 ELEMENTARY RUSSIAN 1Q W 5 Prereq 101 or =.

103 ELEMENTARY RUSSIAN 1Q S 5 Prereq 102 or =.

213 INTERMEDIATE RUSSIAN 1Q A 4 Prereq 103 or =.

215 ADVANCED RUSSIAN 1Q W 4 Prereq 213 or =.

217 RUSSIAN REVIEW GRAMMAR AND COMPOSITION 1Q S 3 Prereq 215 or =.

301-302-303 SURVEY OF RUSSIAN LITERATURE 3Q A W S 2 Prereq 217.
SPANISH

MAJOR REQUIREMENTS. Candidates for the degree of Bachelor of Arts with a major in Spanish must meet the following requirements in addition to the general requirements for graduation listed earlier in the catalog:
1. Spanish 101 to 217 inclusive, or equivalent.
2. At least 19 credits from courses numbered 300 or over.
3. Four quarters, or equivalent, of another language.
4. Two quarters in history of Europe or Spanish America, chosen from the following: History 210, 215, 216, 268, 269, 277, 288.

FOR UNDERGRADUATES
101 ELEMENTARY SPANISH 1Q A W Su 5.
102 ELEMENTARY SPANISH 1Q W S Su 5 Prereq 101 or =.
106 ELEMENTARY SPANISH 1Q A S Su 5 Prereq 102 or =.
111 SPANISH FOR ELEMENTARY TEACHERS 1Q a/q Prereq c/f.
213 INTERMEDIATE SPANISH 1Q A W Su 4 Prereq 103 or =.
215 ADVANCED SPANISH 1Q W S Su 4 Prereq 213 or =.
217 SPANISH GRAMMAR REVIEW AND COMPOSITION 1Q A S Su 5 Prereq 213 or =.

FOR UNDERGRADUATES AND GRADUATES
309 SPANISH CONVERSATION 1Q a/q 2 R-4 Prereq 217.
309 ADVANCED SPANISH COMPOSITION 1Q S 3 e/y Prereq 217 or =.
331 CERVANTES 1Q A 3 e/y Prereq 217.
335 SPANISH DRAMA OF THE GOLDEN AGE 1 Q W 3 e/y Prereq 217.
335 PICARDESQUE NOVEL 1Q S 3 e/y Prereq 217.
351 19TH CENTURY SPANISH NOVEL 1Q A 3 o/y Prereq 217.
352 19TH CENTURY SPANISH DRAMA 1Q W 3 e/y Prereq 217.
361 CONTEMPORARY SPANISH DRAMA 1Q A 3 e/y Prereq 217.
363 CONTEMPORARY SPANISH NOVEL 1Q W 3 o/y Prereq 217.
371-372 SPANISH-AMERICAN LITERATURE 2Q W S 3 o/y Prereq 217. (371) General survey from Colonial times through the Modernista movement; (372) contemporary prose writers with emphasis on the novel.
381 SPANISH POETRY 1Q A 3 o/y Prereq 217.
491 SEMINAR 1Q W S V 2-5 R-15 Prereq 217.

FOR GRADUATES
669 THESIS a/q V R-15.

THE TEACHING OF FOREIGN LANGUAGES
491 METHODS OF TEACHING FOREIGN LANGUAGES 1Q S Su 3 Prereq 217 or = or concurrent registration. Fundamental principles, concepts, objectives, and methods involved in the teaching of a foreign language. Required of teaching majors and minors in modern languages.

FORESTRY

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

The four-year and five-year curricula lead to the degree of Bachelor of Science in Forestry. The degrees of Master of Science in Forestry, Master of Science in Forest Conservation, Master of Forestry, and Master of Science in Wildlife Management are also offered (see Graduate School). Within the general forestry curriculum the student may specialize at the undergraduate level in Forest, Range, Wildlife or Recreation Management, or in Wood Utilization. A five-year curriculum is offered in Forest Engineering. Laboratory and field work are distinguishing characteristics of Forestry 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, Forest Engineering, Forest Recreation, Range Management, Wildlife Management or Watershed Management as their field of specialization will spend their sophomore spring quarter in camp on the Lubrecht Forest. Those selecting Forest Management or Forest Engineering will also be expected to spend their senior spring quarter on a field trip in the western states and at the Neils Forest Camp. Those selecting Range Management will spend 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 or 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 a minimum of 1½ years of algebra and one year of geometry.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN FORESTRY. A minimum of 152 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.

A senior student in the School of Forestry who has earned a total of at least 192 undergraduate credits, but still lacks as many as 16 in his major field, may be allowed to begin graduate work. All requirements for such enrollment must be submitted in writing to and be approved by the major adviser and the Dean of the Graduate School prior to registration for such work. See Graduate School.

FIELD COURSE EXPENSE DEPOSITS. All students enrolled in Forestry courses will be charged a laboratory fee of $15.00 per quarter.

All seniors and sophomores must be prepared to spend all or part of the spring quarter off campus and should be prepared to make additional deposits to meet actual field expense.

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.
CONSERVATION is the scientific management of natural resources. The term management as used here pertains more specifically to the “wise use” of our renewable natural resources and involves in many instances the multiple and coordinated use of several resources existing on the same, adjacent or associated areas. Forests and forestry play an important part in the solution of many conservation problems, however, the foresters’ training is from necessity specialized to meet the demands of the profession and the accreditation agencies. Many conservation problems demand a broader training than that called for in the professional fields of Forestry, Agriculture, Geology, Ecology, Hydrology and others. On the other hand, it is generally conceded that there is a limited field of employment for the Conservation Generalist.

For these reasons, it is desirable for the student to specialize in one of the several fields that play an important part in Conservation, but to have a broad background of basic courses. The four year curriculum leads to the degree of Bachelor of Science in Forest Conservation. The Master of Science in Forest Conservation is also offered.

This training prepares the graduate for employment with Federal and State Conservation agencies that usually require the applicant to qualify under a civil service examination. The requirements are available with private companies.

High School preparation and special requirements for the degree in Forest Conservation are the same as for Forestry.

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

**FOREST CONSERVATION**

(All group requirements are not included)

CONSERVATION is the scientific management of natural resources. The term management as used here pertains more specifically to the “wise use” of our renewable natural resources and involves in many instances the multiple and coordinated use of several resources existing on the same, adjacent or associated areas. Forests and forestry play an important part in the solution of many conservation problems, however, the foresters’ training is from necessity specialized to meet the demands of the profession and the accreditation agencies. Many conservation problems demand a broader training than that called for in the professional fields of Forestry, Agriculture, Geology, Ecology, Hydrology and others. On the other hand, it is generally conceded that there is a limited field of employment for the Conservation Generalist.

For these reasons, it is desirable for the student to specialize in one of the several fields that play an important part in Conservation, but to have a broad background of basic courses. The four year curriculum leads to the degree of Bachelor of Science in Forest Conservation. The Master of Science in Forest Conservation is also offered.

This training prepares the graduate for employment with Federal and State Conservation agencies that usually require the applicant to qualify under a civil service examination. The requirements are available with private companies.

High School preparation and special requirements for the degree in Forest Conservation are the same as for Forestry.

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

**FOREST CONSERVATION**

(All group requirements are not included)
WATERSHED MANAGEMENT

Second Year
Autumn: For 300, 350, 390; Geol 110; H&PE 100; ROTC 201. Winter: Bot 255; For 250, 251; Psych 110; H&PE 100; ROTC 205. Spring: Bot 256; For 200, 250, 253; ROTC 203.

Third Year
Autumn: For 300, 350, 390; Geol 110. Winter: For 301, 352, 456, 400 Econ 112. Spring: For 311; H&PE 100; Psych 112; Econ 202; Electives.

Fourth Year
Autumn: For 420, 441, 442; Geol 200. Winter: For 400, 421, 444; Geol 262. Spring: For 481; Geol 265.

WILDLIFE CONSERVATION

Second Year
Autumn: For 50, 210, 252, 250; Zool 104; H&PE 100; ROTC 201. Winter: Bot 255; For 250, 251; Psych 110; H&PE 100; ROTC 205. Spring: Bot 355; Psych 201; H&PE 100; ROTC 205.

Third Year

Fourth Year
Autumn: For 460; Econ 203; Electives. Winter: For 250, 470, 472, 490; Electives. Spring: For 471, 481; Econ 202; Electives.

FOR UNDERGRADUATES

For explanation see Index under “Symbols”

50 SLIDE RULE 1Q A 0 (1-0) Prereq Math 100 and 113 or concurrent registration. Use of the slide rule in the solution of mathematics problems.

190-191-192 SURVEY OF FORESTRY 3Q A 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 ELEMENTARY FOREST MENSURATION 1Q S 4 (2-8) Prereq sophomore standing in the School of Forestry. The fundamentals and field problems in tree and timber stand measurements, including site determination, tree form, volume tables, timber cruising, logging, scaling, forest mapping and growth determination.

210 SOILS 1Q A 4 (3-4) Prereq Chem 101-102 or = Soils of forest and range lands; soil morphology, physical, and chemical properties; soil erosion control.

230 ELEMENTS OF FOREST PROTECTION 1Q S 3 (3-0) Prereq sophomore standing, Bot 121 and For 290-291. Protection of the forest against fire, wind and disease; insects, wildlife, man, grazing, and climatic factors.


251 PLANE TABLE SURVEYING 1Q S 5 (2-6) Prereq Math 111 or 116. Care and use of plane table telescopic alidade and rod. Introduction to differential leveling, stadia surveying, plane table survey methods. Adjustment of instrument and vertical and horizontal circles. Topographic map construction. Primarily for anthropology and geology majors, not for forestry and wildlife majors.

252-253 SURVEYING 2Q A 4 (0-8), S 5 (2-6) Prereq Math 113 and 116 and For 50 prior to or concurrently with For 252. (252) Care and use of tape, staff compass, Abney level, Engineer’s level, transit, plane table, and telescopic alidade. Introduction to differential leveling techniques, stadia, and point and traverse measurements, public land surveys, land survey methods; (253) instrument adjustment. Establishment of a triangulation, horizontal, and vertical control system. Topographic surveys and maps obtained by various combinations of instruments. Solar observations. Introduction to earthworks.

255 FOREST AESTHETICS 1Q W 4 (3-3) Prereq sophomore standing in the School of Forestry and c/l. Historical development and problems in recreational use of forests and wild lands. Appreciation of natural landscape values. State, national park and wilderness areas and intangible public values. Field trips.

256-257 DENDROLOGY 2Q A W 3 (2-3) Prereq sophomore standing in the School of Forestry and c/l. The taxonomic relations and distribution of the principal forest and ornamental trees of the United States and Canada. Identification, uses, range, and silvical characteristics.

FOR UNDERGRADUATES

300-301 FOREST MENSURATION 2Q A W 4 (3-3). (300) The application of statistical methods to forest mensurables, including soil values and growth and yield equation analysis and their computations.

300 FARM FORESTRY 1Q S 3 (2-4) Prereq junior standing in the School of Forestry. The application of principles of forest mensuration, management, silviculture and soils to small woodlots and homesteads.

310 SILVIC A Q A 4 (4-4) Prereq Bot 225 and 280. The foundations of silviculture upon an ecological basis. The effects of climatic, edaphic, biotic, and genetic factors on the growth and development of trees and stands and upon the influence of the management of the site. Principles underlying the regeneration, care, and protection of forest stands.

311 SILVICULTURAL METHODS 1Q S 5 (4-4) Prereq 310. The development of forest production. Techniques, intermediate and cultural operations. Field trips.

320 SEEDING AND PLANTING 1Q S 3 (2-4) Prereq 311. Artificial reproduction of the forest; collection, extraction, storage, and testing of forest tree seeds; direct seeding; nursery practice; forest planting. Field trips.


331 FOREST FIRE PLANS 1Q W 3 (3-0) Prereq junior standing in the School of Forestry and 330. Area pre-suppression fire plans, action planning on small and large project fires, fuel type mapping, fire prevention techniques.

340 WOOD TECHNOLOGY 1Q W 4 (3-5) Prereq 291. Wood identification and anatomy: introducing the relationships of the physical, chemical and mechanical properties to specific uses.

341 CHEMICALLY DERIVED WOOD PRODUCTS 1Q S 3 (3-0) Prereq Chem 201 or c = General chemistry of wood. Survey of chemically derived products and processes including Naval Stores, pulp, paper and modified woods.


350-351 ADVANCED SURVEYING 2Q W S 2 (0-4) Prereq 259, 252-253 and 121. Surveying in the woods;高中 surveying and geodetic techniques; surveying techniques. (351) selected topics of surveying not covered in For 252-253.

352 AERIAL PHOTOGRAMMETRY 1Q W 3 (1-4) Prereq 253 or =. The elements of photogrammetry and their applications with emphasis on the measurement of forest variables. Application of photogrammetric methods to planimorphic and topographic mapping. Introduction to the principles of photo interpretation.

353 TIMBER MECHANICS 1Q W 3 (0-6) Prereq Physics 111. Graphite and analytic statics; simple structures; simple beam and truss design; use of timber connectors.

354 AERIAL PHOTO INTERPRETATION 1Q S 3 (0-6) Prereq 352 and c/l. Co-ordinated work between laboratory and field. Map cutting, cover and top mapping, mensurational techniques, and topics of individual interest.

355 GENERAL RANGE MANAGEMENT 1Q A 5 (4-3) Prereq c/l. An introduction to the field of range management, class of stock, grazing season, economic value of livestock on range. Range improvements; forest and range interrelations.

356 RANGE FORAGE PLANTS 1Q S 4 (0-6) Prereq 360, Bot 366 and c/l. Economic range forage plants; forage value to different kinds of range animals; management problems in their use.

357 GENERAL WILDLIFE MANAGEMENT 1Q W 4 (4-0) Prereq c/l. The principles of population dynamics and their application to the management of wildlife as a land resource.

358 THE RENEWABLE RESOURCES AND THEIR CONSERVATION 1Q A W S 3 (3-0) Prereq 210 and Bot 250. The interrelationship of resource conservation problems and programs. The need for conservation to maintain our renewable resources and manage their development and use to meet the needs of our expanding population. Conservation biology and the practices of the federal agencies involved in their application. (Not open for doctoral credit.)

359 FOREST RECREATION 1Q S 4 (0-4) Prereq 265. Physical development, objectives and planning in the recreational use of forest and other wild lands. Class and field.

360 PARK MANAGEMENT 1Q W 3 (3-0) Prereq 285. Theory, evaluation and management of parks and forest development in the United States, state, national and local level. Forestry aspects related thereto.

400-401 FOREST MANAGEMENT 2Q W 5 (5-0). S 8 Prereq 311 and 420 (420 may be taken concurrently). (400) Organization and management of forest properties; determination of allowable cut and regulation of the growing stock. (401) Prereq 301 and 400. Emphasis on field work necessary in applying forest management, timber cruising, determination of growth, and timber marking.
GENERAL COURSES

are offered as surveys or introductions to broad fields of learning, but there is no "general course" in which a degree is offered. Any University student is compelled to study in many fields as a matter of general education; and specialization in one curriculum, although required for a degree is strictly limited (see Graduation Requirements). Students are advised to provide certain degree-curricula which overlap two or more of the curricula described in other pages of the catalog and in which the specialized instruction is drawn from several fields.

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

100 DESCRIPTIVE ASTRONOMY 1Q S 4. An introductory course: The earth and the sky, seasons, telescopes and their uses, planets and their satellites, stars, galaxies. (Applies toward Group I.)

101-102-103 INTRODUCTION TO THE READING OF LITERATURE 3Q S 2. Offered any quarter. Training in the skill of reading literature, including the reading of, and the conditions producing, popular and inferior forms of literature. (101) Fiction. (102) Drama. (103) Poetry. (General requirement for M.A. examinations.)

125-126-127 SCIENCE FOR ELEMENTARY TEACHERS 3Q A W S Su 4 (3-3) Open only to majors in Elementary Education. (125) A survey of the fundamental aspects of physical science, including force and motion, electricity, magnetism, wave motion, gravity, states of matter, the universe, geologic processes, atomic structure, and related topics. (126) An investigation of the interrelationships of physical and biological sciences: the elements, chemical reactions, balance of biology, biochemical metabolism, cell structure, relationship of cell structure and function, cell division, basic genetics, origin of life, and related topics. (127) A survey of the animal and plant kingdoms, including taxonomy, morphology, physiology, life cycles, ecology, evolution, and related topics.

131-132-133 INTRODUCTION TO BIOLOGICAL SCIENCE 3Q A W S 5. The essential structure and function of living organisms. Principles of heredity. Morphology, physiology, classification and possible evolution of the plant and animal life. A descriptive introduction to the principles of genetics and physiology within the principal animal phyla, with emphasis upon mammalian history and theory of evolution; evidence for evolution from all fields of biology; conquest of environment, mechanisms of multiplication. Principles of bio-ecology and their implications to man in the field of conservation. Given by the departments of Botany and Microbiology, and Zoology.

151-152-153 INTRODUCTION TO THE HUMANITIES 3Q A W S 5. Enter any quarter. Those who have completed 8 or more college credits in literature may not receive credit in this course. A general survey of the field of Humanities. Acquaintance with literature through reading from the literature of the Greeks to the present and with the primary aims of understanding and appreciation. Given by the departments of English, Foreign Languages, and Philosophy.


FOR UNDERGRADUATES AND GRADUATES

300 CONSERVATION OF NATURAL AND HUMAN RESOURCES IN MONTANA 1Q W S 3 Prereq a/q. 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 and cultural resources. The methods of social implementation of desired practices. Primarily a teacher training course. Does not satisfy requirements for degrees in Botany or Zoology or the group requirements in science.

360 INTRODUCTION TO LINGUISTICS 1Q A Su 3. A survey of linguistic science. The nature of language and the techniques of the descriptive linguist. (See English.)

450 WILDLIFE SEMINAR 1Q A 2 Prereq senior standing in Wildlife Technology or Forestry. Legal problems, policy and administrative problems.

GENERAL LITERATURE

These courses may be applied toward a major in the Department of English, except for 161. Courses numbered 207, 208, 249 and 491-492-493 will allow a major in English with the approval of the English Department.

161 CLASSICAL MYTHOLOGY. (See Foreign Languages.)

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

FOR UNDERGRADUATES AND GRADUATES

307-308-309 THE DRAMA. (See English.)

344-545 THEORIES OF DRAMA. (See English.)

440 STUDIES IN COMPARATIVE LITERATURE. (See Foreign Languages.)

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

GEography

is concerned with the description and analysis of the earth's surface. Geographers describe the location and distribution of physical and human elements 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 listed earlier in the catalog the following special requirements must be completed for the Bachelors of Arts degree with a major in Geography: a minimum of 20 credits in Geography including 101, 201, 202, and two of five Geography courses 301, 331, 335, 345, and 371; Economics 201-202-203; Geology 110; History 251-252-253 or Political Science 202-203; 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 355, Business Quantitative Methods 244, Business Quantitative Methods 350, General 190, Geology 310, Sociology 304, and Forestry 350.

The foreign language requirement listed earlier in the catalog 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.

Suggestions CURRICULUM IN GEOGRAPHY

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For explanation see Index under "Symbols"
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.

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 algebra, physics, and chemistry.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN GEOLOGY. In addition to the general requirements for graduation listed earlier in the catalog the following requirements must be completed for the Geology curriculum: Geology 110, 120, 130, 200, 202-203, 311-312, 315, 320, 3 cr of 325, 320-331, 461. Also required are Mathematics 113, 116, 118; Chemistry 121-122, 123; Physics 111-112-113 or 221-222-223; English 394; Geography 370, Zoology 104-105 or Mathematics 251-252. A foreign language, 3 quarters in one language, or 3 quarters in each of two languages, or a reading knowledge, is required. French, German, Russian or Spanish is recommended.

Departmental requirements can be waived for students who at the end of any complete year have a B average in all college courses previously taken while pursuing a standard geology curriculum. A special geology curriculum may be devised for these students in consultation with their advisers. This will, for example, allow special curricula planned for special areas of interest such as microbiology or paleontology. This is applicable at the end of the freshman year and to transfer students, and can be revoked if the grade average falls below B.

COMBINATION GEOLOGY AND LAW PROGRAM. Students in this program complete all of the above requirements except Geology 250, 461; Math 116, 118; Physics 111-112-113 or 221-222-223; Zoology 104-105; English 394; and Geography 370. Three quarters of Latin are recommended for part of 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 if 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.

SPECIAL REQUIREMENTS FOR THE GRADUATE DEGREES. Not more than 9 credits of Geology 600 and 699 may be counted toward Master's degree requirements.

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 320 Field Geology.

CURRICULUM IN GEOLOGY

Freshman Year

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<th>Course Code</th>
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<td>Math 113, 116, 118</td>
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<td>Geol 200, 202, 203</td>
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<td>Geol 130</td>
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18-18 18-18
Junior Year

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<td>F. L. 101-1060</td>
<td>Field methods in geology</td>
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<td>Geol 320-331</td>
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Senior Year

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<td>Geol 461</td>
<td>Geology of Montana and vicinity</td>
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<td>Eng 204</td>
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<td>F. L. 312, 215</td>
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<td>Geol 320</td>
<td>8 cr (summer session)</td>
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Analysis of Requirements

1. University requirements (Eng 9 cr.; Group II 12 cr, 3 of which are satisfied by Geol 370; Group III 12 cr.; F. L. 23 cr, 8 of which can be applied toward Group III) 45
2. Geology course requirements 54
3. Other departmental requirements (Math 13-23 cr., Chem 19 cr., Physics 15 cr, Zool 6-10 cr, Eng 3 cr, Geog 3 cr) 63
4. Military Science 6-9
5. Health and Physical Education 6
6. Electives 12-8

Total 188

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

101-102 INTRODUCTION TO GEOLOGY 2Q A W S Su 101, Wth 102, Physics 110 (181) Minerals, rocks, and structure of earth's crust; the dynamic processes, volcanism, diastrophism, and gradation which shape the earth's landscape; (102) the origin of the earth and its development through geologic time; changes of land and sea 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/v. Minerals, rocks, and structure of earth's crust; the dynamic processes, volcanism, diastrophism, and gradation which shape the earth's landscape. Credit not allowed for 110 and 101.

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

130 FIELD METHODS 1Q S 3 (1-3). Prereq. 110. Field techniques including aerial mapping, use of Brunton compass, altimeter, Jacob staff, measurement and description of stratigraphic sections and geologic mapping on aerial photos and topographic base maps. Some full-day field trips on Saturday.

200 GENERAL PALEONTOLOGY 1Q A 4 (3-2) Prereq. 110. General principles of paleontology, evolution, and history of plants and animals.

202-203 HISTORICAL GEOLOGY 2Q W S 4 (3-2) Prereq. 110, 209. The origin of the earth. Precambrian and Paleozoic history. (203) Mesozoic and Cenozoic history. Stratigraphic methods, and principles, and North American stratigraphic successions are considered. Laboratories include map, library, and field exercises.

311-312 MINERALOGY 2Q A W 4 (2-6) Prereq. Chem 121 and Math 116. Elements of crystallography; origin, classification and determination of common minerals. Physical and chemical properties; special emphasis on ore and rock forming minerals.

315 PETROLOGY 1Q S 4 (2-6) Prereq. 312. Common rocks, their mineral composition and physical characteristics, classification, identification in the field, origin and structural features.

320 FIELD GEOLOGY 1Q Su 8 (5½ days per week for 6 weeks in the field) Prereq. 190, 303, 315. Given by Indiana University Geology Department staff at their field station near Whitehall, Montana. Primarily detailed geologic mapping. Registration must be completed by April 1.

325 PROBLEMS 1Q a/q 1-5 Prereq. 30 cr in Geology or = and c/v. Supervised investigation in any phase of geologic study in which the student has sufficient background to contribute original thought.

330-331 STRUCTURAL GEOLOGY 2Q A W 3 (2-4) Prereq 203, Math 113 or 220 or concurrent registration. Structural development of earth's crust; their analysis by geometric and stereographic projections.

461 SEMINAR 1Q W 1 (2-0) Prereq senior standing in Geology.

FOR UNDERGRADUATES AND GRADUATES

300 GEOLOGY OF MONTANA 1Q Su 3 (2-3) Prereq c/v. Primarily for natural science teachers. General earth science with emphasis on Montana. Most laboratory work out-of-doors. Not allowed toward a geology degree.

305 MONTANA MINERAL RESOURCES 1Q Su 3 (2-3) Prereq c/v. Primarily for teachers of natural science. Selected oil fields and metallic and non-metallic mineral deposits in Montana and vicinity with some field trips. Not allowed toward a geology degree.

308 INTRODUCTION TO VERTEBRATE PALEONTOLOGY 1Q A 4 (2-4) Prereq 200 or -. Principles of vertebrate paleontology, vertebrate evolution; comparative laboratory examination of representative fish, amphibians, reptiles, mammals and birds.

310 GEOMORPHOLOGY 1Q A 4 (3-3) Prereq 203, 220. Topographic features that comprise the landscape; their origin, development, classification and geologic environments of metallic mineral deposits.

405 METALLIC MINERAL DEPOSITS 2Q A W 4 (3-2) Prereq 311, 315. Theoretical and practical aspects of nature, origin, classification and geologic environments of non-metallic mineral deposits.

410-411 INVERTEBRATE PALEONTOLOGY 2Q A W 4 (2-4) Prereq 110, Zool 104-105 or concurrent registration. Fossil remains of invertebrate animals; emphasis on morphology of skeletal parts and classification.

420 OPTICAL MINERALOGY 1Q A 4 (2-6) Prereq 315, Physics 113, 114. Emphasis on polarizing microscope and accessories; theory of optical phenomena observed with microscope; identification of mineral fragments and minerals in thin section.

425-426 PETROGRAPHY 2Q W S 4 (2-6) Prereq. 315, 420. Optical examination and identification in thin section of igneous minerals and rocks by polarizing microscope; (426) similarly treats metamorphic and sedimentary rocks. Advanced petrologic considerations included in both quarters.

427-428 GEOCHEMISTRY 2Q A W 3 (3-0) Prereq Chem 123, Math 253. (427) Fundamental chemical principles governing abundance distribution, and migration of elements within the earth. (428) Principles of thermodynamic and crystal chemistry as applied to formation and transformation of rocks.

500 PRINCIPLES OF STRATIGRAPHY 1Q A 3 (2-3) Prereq 130, 331; 410-411 recommended. Interrelationships of environment, tectonic controls, and facies problems of correlation; isopachs, facies, paleogeographic and paleogeographic maps; field work.

501 PRINCIPLES OF SEDIMENTATION 1Q A 4 (3-2) Prereq 110. Texture, structure, and classification of sedimentary rocks with emphasis on environments of deposition; statistical techniques applied to grain size, shape, roundness; significance of sedimentary structures including dewatering processes; ancient environments; and structural analysis of ancient environments.

505 PETROLEUM GEOLOGY 1Q S 3 (3-0) Prereq 351. Principles of stratigraphic and structural controls of occurrence; some of the problems associated with development.

510 INTRODUCTION TO GEOPHYSICS 1Q S 3 (3-0) Prereq Physics 113, 223, Math 118 or concurrent registration. General properties of the earth and the application of various geophysical procedures. Emphasis on the interrelationships of geophysical anomalies and geologic structure. Geophysical case histories.


510 HISTORY OF GEOLOGY 1Q W 1 (2-0) Prereq 30 credits in Geology. Analysis of the development of some of the fundamental concepts in geology. History of major branches of geology.

511-512 MINERALOGY 2Q W 4 (3-2) Prereq 203, 315. Comparative petrology of minerals, geologic and hydromorphic conditions controlling occurrence and development of ground water; emphasis on conditions in Montana and vicinity.

515 MINERALOGY 1Q W 4 (3-2) Prereq 110, Zool 105. Physical, chemical, biological and geologic aspects of the ocean and its floor.

516 HISTORY OF GEOLOGY 1Q W 1 (2-0) Prereq 30 credits in Geology. Analysis of the development of some of the fundamental concepts in geology. History of major branches of geology.

541-465-466 VERTEBRATE PALEONTOLOGY 3Q 464-465 W, 466 S 4 (5-4) Prereq. Zool 201 or Geol 308 or =. (464) The lower vertebrates. Taxonomy, morphology, paleoecology, and geologic history of fishes and amphibians; modern distributions. (465) Taxonomic, paleoecologic and geologic history of mammals o/y. (466) History and paleoecology of mammals and birds; emphasis on Rocky Mountain Cenozoic stratigraphy o/y.

FOR GRADUATES

500 ADVANCED SEDIMENTATION 1Q W 4 (3-2) Prereq 420, 430, 432. Composition and classification of sedimentary rocks with emphasis on provenance; determination of provenance, transport and tectonic history of grains using petrographic and other techniques.

501 CLAY MINERALOGY 1Q S 4 (3-3) Prereq Chem 123, Geol 315 and 445. Crystal structure and composition of clay minerals; ion exchange reactions, clay-water systems, chemistry of formation of clay minerals, identification of clay minerals by optical and physical techniques.

505 ADVANCED GEOCHEMISTRY 1Q S 3 o/y (3-0) Prereq Chem 123, Physics 113 or 223. Geol 420, 427-428. Application of physical chemistry in study of origin, internal structure and chemical composition of earth.

510 GEOTECHNICAL ENGINEERING 1Q S 3 o/y (3-0) Prereq 331. Analysis, synthesis of regional structural features including geosynclines, island arcs, compressional mountain systems, structure of plateaus, and broad warps. Conditions within earth; possible causes of deformation.
515 STRUCTURE OF MINERAL DEPOSITS 1Q S 3 e/y (3-0) Prereq 400, 401. Classification of mineral deposits according to structural environment and features; special reference to origin as related to tectonic control.

520-321 PETROGENESIS 2Q WS 3 e/y (3-0) Prereq 428 and 429. Study of modern theories of origins of igneous and metamorphic rocks.

525 MICROSCOPIC DETERMINATION OF OPAQUE MINERALS 1Q S 3 e/y (3-0) Prereq 400, 401, 420. Identification of minerals in polished sections by physical and microchemical tests. Theoretical and practical study of mineral paragenesis.

530 X-RAY CRYSTALLOGRAPHY 1Q W 3 e/y (2-3) Prereq 446. X-ray crystallography and structural determination of single crystals by Weisenberg and other methods.

590 SEMINAR a/q V Prereq graduate standing in geology or comparable training in cognate areas and c/i.

595 ADVANCED PROBLEMS a/q V. Investigations of Geologic problems exclusive of thesis research.

600 RESEARCH a/q V. Directed research to serve as thesis for graduate degrees.

690 THESIS a/q V R-15. Credit assigned upon submittal of final copy of approved and bound thesis.

HEALTH AND PHYSICAL EDUCATION

deals primarily with muscular activity and recreation to provide the individual with wholesome psycho-motor and organic development, with fitness for daily living, and with resources for use of leisure. The program provides (1) instruction in a wide variety of sports and recreation skills, (2) opportunity for student groups to organize teams and to participate in formal and informal competition in such activities as archery, badminton, basketball, ball, bowling, golf, horseshoes, skiing, swimming, tennis, touch football, softball and volleyball, and (3) preparation for professional careers in the various fields related to physical education and recreation.

A student may earn either a Bachelor of Arts degree or a Bachelor of Science degree with a major in this field. The Master of Arts and the Master of Science degrees are also offered.

Theory courses include structure and function of the human body, basic principles and teaching procedures, history and philosophy of physical education and administration of programs. Professional activity courses include training in teaching team games, individual and dual sports, gymnastics and tumbling, aquatics, and forms of the dance. Students interested in physical therapy and orthopedic rehabilitation may fulfill entrance requirements for approved school of physical therapy. Health education includes personal as well as school and community problems and the contributions of various agencies to human health and welfare. Recreation courses offer preparation for the group leadership, training in crafts and social activity skills for leaders of youth groups, and background for careers in industrial and community recreation and in recreation therapy. All levels of American Red Cross certification courses are offered in conjunction with swimming and first-aid courses.

Many graduates enter the teaching profession. Some choose to continue graduate studies with specialization in physical therapy or recreation therapy. Others become leaders in public health agencies and in industry.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN HEALTH AND PHYSICAL EDUCATION. Two degrees are offered in this Department: Bachelor of Arts, which requires that the foreign language requirement listed earlier in the catalog be satisfied, and Bachelor of Science, which requires no courses in foreign language. Students electing the Bachelor of Science degree will offer the following courses: Home Economics 146, Psychology 230, Speech 111, Microbiology 105, and 8-10 credits selected from two of the following areas: Sociology, Anthropology, General 151-152-153. Requirements for both degrees are identical in all other aspects.

In addition to the general requirements for graduation listed earlier in the catalog, the following special requirements must be completed: 54 credits in Health and Physical Education in addition to Health and Physical Education 115-116-117, 119-120; Education 335, 373; Social Welfare 362; Zoology 202 and 4 or 5 credits from Zoology 101 or 104, or Chemistry 101, or Physics 111. Pre-physical therapy students must include Zoology 101 or 104, and 5 credits of a physical science.

The following courses must be completed by all students: Health and Physical Education 188, 199, 236 or 299, 250, 256, 375, 380, 396, 465, and 470.

Women students also take: Health and Physical Education 190, 231, 232, 301, 302, 324-225, 375, and 469.

For Bachelor of Science Degree

Freshman Year

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<td>Elective (Group III)</td>
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Women 16 | 16 | 16
Men 14-16 | 16 | 16

Sophomore Year

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<td>Educ 200</td>
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<tr>
<td>H&amp;PE 118-119-120</td>
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<td>H&amp;PE 210-211 (Men)</td>
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<td>H&amp;PE 212-222 (Women)</td>
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Men 8 | 8 | 8

Women 16 | 16 | 16
Men 17 | 17 | 17

Junior Year

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<td>H&amp;PE 240 (Men)</td>
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<td>H&amp;PE 365</td>
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Electives

Women 7 | 7 | 7
Men 5 | 5 | 5

Men and Women 17 | 17 | 17

Senior Year

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<td>H&amp;PE 357</td>
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<td>H&amp;PE 375</td>
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<td>H&amp;PE 386</td>
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Electives

Women 7 | 7 | 7
Men 5 | 5 | 5

Men and Women 17 | 17 | 17

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

100 PHYSICAL EDUCATION A W S Su 1. Instruction in the beginning skills and when feasible, in intermediate and advanced techniques for Team Sports, Individual and Dual Sports, Combatives, Swimming, Dance, and Adapted Activities. A student may not repeat a class in beginning athletic sport in which he has received a passing grade. Six credits are required for graduation and only 1 credit per quarter may be used to meet this requirement. All students except those excused for cause are required to pass the university swimming test. (See Required Courses earlier in the catalog.)
HEALTH & PHYSICAL EDUCATION—55

115-116-117 PROFESSIONAL ACTIVITIES FOR MAJORS AND MINORS 3Q A W S 1. e/y Enter any quarter. Required of all majors and minors in H&PE, open to non-majors. May be used in place of 100-110 or 110-120 quarter. Required of all majors and minors in H&PE, open to non-majors. May be used in place of 100-110 or 110-120 quarter. Required of all majors and minors in H&PE, open to non-majors. May be used in place of 100-110 or 110-120 quarter. Required of all majors and minors in H&PE, open to non-majors. May be used in place of 100-110 or 110-120 quarter. Required of all majors and minors in H&PE.

118-119-120 PROFESSIONAL ACTIVITIES FOR MAJORS AND MINORS 3Q A W S 1. e/y Enter any quarter. Required of all majors and minors in H&PE, open to non-majors. May be used in place of 100-110 or 110-120 quarter. Required of all majors and minors in H&PE, open to non-majors. May be used in place of 100-110 or 110-120 quarter. Required of all majors and minors in H&PE, open to non-majors. May be used in place of 100-110 or 110-120 quarter. Required of all majors and minors in H&PE, open to non-majors. May be used in place of 100-110 or 110-120 quarter. Required of all majors and minors in H&PE.

190 HISTORY OF PHYSICAL EDUCATION 1Q W 2. Basic survey of history from primitive cultures through the modern era.

196 INTRODUCTION TO PHYSICAL EDUCATION 1Q W 3, Su e/y PreReq major in Physical Education or c/l. History and principles of Physical Education, professional opportunities, relationships with other fields and with education in general. Orientation for prospective majors and minors.

199 FIRST AID 1Q A W S 2, Su e/y. Recognition and treatment of common injuries. Red Cross certification may be secured upon completion of the course.

206 ADVANCED COACHING TECHNIQUES 1Q Su only 1 week 1. Intensive training in special techniques of coaching football and basketball and in athletic training. (Special coaching school.)

210 COACHING OF FOOTBALL 1Q W 3.

211 THEORY OF OFFICIATING FOOTBALL 1Q W 1. Principles, rules and techniques.

212 FOOTBALL OFFICIATING FIELD WORK 1Q A 1 PreReq 211. Practical experience.

220 COACHING OF BASEBALL 1Q W 3.

221 THEORY OF OFFICIATING SOFTBALL AND BASEBALL 1Q W 1. Principles, rules, and techniques.

222 SOFTBALL AND BASEBALL OFFICIATING FIELD WORK 1Q S 1. PreReq 221. Practical experience.

230 HUMAN ANATOMY 1Q A 5, Su e/y. The systems of the body and the structure of organs composing these systems.


233 METHODS OF TEACHING PHYSICAL EDUCATION 1Q A 3 Su e/y PreReq 110 through 120. Required of all teaching majors and minors in H&PE. Materials for junior and senior high school programs of demonstration and practice in teaching techniques. Lesson planning.

237 THE ELEMENTARY SCHOOL PHYSICAL EDUCATION PROGRAM 1Q S Su 3 PreReq 190 and 335. Theory and practice in selecting and presenting activities for young children. Emphasis on growth and development related to course content. Credit not allowed for this and 339.

238 CREATION LEADERSHIP (SOCIAL RECREATION) 1Q W PreReq Sociology 101. Principles and practice in group leadership of social activities; skills in organizations and recreational leadership. Credit not allowed for this and Social Welfare 363.

239 CREATION LEADERSHIP (CAMP LEADERSHIP) 1Q S PreReq Sociology 101. Principles and practice in leadership of social activities; skills in organization and recreational leadership. Credit not allowed for this and Social Welfare 363.

240 CARE AND PREVENTION OF ATHLETIC INJURIES 1Q W 2, Su e/y. PreReq major in Physical Education or c/l. Principles and practice of injury prevention, recognition, and first aid.

241 COACHING OF TRACK 1Q W 2, Su 3. Theory and practice in coaching track and field work.

242 COACHING OF TRACK 1Q S 2. Practice.

243 METHODS AND MATERIALS IN SOCIAL DANCING AND TAP DANCING 1Q A 2.

245 METHODS AND MATERIALS IN MODERN DANCE 1Q W 2.

246 METHODS AND MATERIALS IN FOLK DANCING AND SQUARE DANCING 1Q S 2.

250 INTRODUCTION TO PRACTICUM IS 1Q S 1. PreReq major in Physical Education or c/l. Advanced Red Cross Certificate in First Aid. Techniques and practice in teaching first aid. Red Cross Instructor's Certificate awarded upon successful completion of requirements, providing a student has reached the 20th birthday.

339 TEACHING PHYSICAL EDUCATION IN THE ELEMENTARY SCHOOLS 1Q A S Su 3 PreReq major in elementary education and Educ 202 or teaching experience. Principles and foundations of elementary school physical education; theory and practice in selecting and teaching activities for children in grades one through eight, with special emphasis on the problems of the grade school teacher. Credit not allowed for this and 337.

340 PLAYGROUNDS 1Q A 4 PreReq 337. Theory of play. History, construction, equipment, management, problems, methods of conducting, and practical working supervision of playgrounds.

345 THE HIGH SCHOOL INTRAMURAL PROGRAM 1Q Su 3. Principles of organizing and administering the intramural sports in the high school.

347 INTRODUCTION TO RECREATION LEADERSHIP 1Q A 3 PreReq Sociology 101. Sociology of play, recreation and leisure time, community based upon, success to recreation; recreation for industrial workers, hospital patients, senior citizens, playgrounds; facilities and resources. Credit not allowed for this and Social Welfare 361.

348 CURRICULUM CONSTRUCTION 1Q W 4. PreReq 337. Classification and analysis of physical education activities; criteria for selecting activities; construction of programs for specific situations.

370 SCHOOL HEALTH PROBLEMS 1Q W S Su 4. Required of all teaching majors and minors in H&PE and of all students seeking elementary teaching certification. School health problems in the areas of health services, healthful school environment, and health education.

375 PERSONAL HEALTH PROBLEMS (WOMEN) 1Q W 2. Selective study of counseling problems frequently encountered by physical educators. 

379 PHYSIOLOGY OF EXERCISE 1Q W 2, Su e/y. The physiological effects of the different types of exercise on the function of the body.

380 KINESIOLOGY 1Q W 5, Su e/y PreReq 380. Advanced study of muscle action and joint mechanics of the body.

381 PREVENTIVE AND CORRECTIVE PHYSICAL EDUCATION 1Q S 5. PreReq major in Physical Education or c/l. Principles of the common physical defects frequently encountered by the physical educator; follow-up programs possible under medical supervision.

400 SEMINAR 1Q V 1-3 R 12. Special problems connected with health, physical education and recreation; reviews of current literature, and topical discussions.

405 TESTING IN PHYSICAL EDUCATION 1Q A 2, Su e/y. Orientation to testing and measuring, administrative use of tests, elementary statistical techniques and procedures.

466 SUPERVISION IN PHYSICAL EDUCATION 1Q Su 4. PreReq 335 or 380. Roles and responsibilities of supervisors in effecting effective leadership.
FOR GRADUATES

501 RESEARCH 1Q A Su 3. Prereq 503 or =, or concurrent registration. Research methods and techniques used in health, physical education, and recreation. Instruction in conducting independent studies.

503 ADVANCED TESTS AND MEASUREMENTS 1Q W 4. Su o/y Prereq 465 or =. Specific tests for evaluation of individual muscular, psychological, and motor abilities. Practice in construction and application of tests, and interpretation of results.

321-322-323 FOUNDATIONS OF PHYSICAL EDUCATION 3Q A W 5 Su 3. Enters the major through the Medieval period. Greek and Roman civilization, barbarian invasions; Greek society to 1400; (102) Early Modern Age to 1815; Age of Absolutism; partition of Europe; French Revolution and Napoleon; (103) 1815 to present. Industrial Revolution; Congress of Vienna and Age of Restoration; Growth of nationalism and internationalism; Socialism, Imperialism, First and Second World Wars, the Cold War.

101-102-103 THE DEVELOPMENT OF WESTERN CIVILIZATION 3Q 1A W Su 3. Enters major through the Medieval period. Greek and Roman civilization, barbarian invasions; Greek society to 1400; (102) Early Modern Age to 1815; Age of Absolutism; partition of Europe; French Revolution and Napoleon; (103) 1815 to present. Industrial Revolution; Congress of Vienna and Age of Restoration; Growth of nationalism and internationalism; Socialism, Imperialism, First and Second World Wars, the Cold War.

695 THESIS a/q V R-10.

505 RESEARCH 1Q A Su 3. Prereq 503 or =. The design and conduct of research in selected areas of physical science, education, and recreation. Research methods and techniques used in health, physical education, and recreation. Instruction in conducting independent studies.

FOR UNDERGRADUATES

301-302-303 HISTORY OF ANCIENT GREECE 1Q A 4. Prereq 101 or =. An introductory survey of the Ancient Near Eastern Empires, and a survey of Greek culture during the period of the Homeric epic through the age of Alexander the Great, and the Hellenistic Age to the rise of Rome.

305 HISTORY OF ANCIENT ROME 1Q W 4. Prereq 101 or =. Early Roman civilization and the development of Hellenistic culture. The Republic, the Principate, and the Empire.

306 MEDIEVAL CIVILIZATION 1Q S 3. Prereq 101, 207-208 or =. An introduction to medieval periods and their development. The political, economic, and social development of France from the 13th century to the present.

314 FRENCH REVOLUTION AND NAPOLEONIC ERA 1Q S Su 4. Prereq 102 or =. Political, economic, and social development in France and the international reactions to the revolution.

318 THE EARLY 20TH CENTURY (1900-1933) 1Q S Su 3. Prereq 102. The growth and development of Britain and of the continental powers. International rivalry prior to the First World War, the War and its aftermath.

319 CONTEMPORARY EUROPEAN HISTORY 1Q S Su 4. Prereq 102. An introduction to modern European history. The internal affairs and the external relationships of the principal European states since 1939.

321-322 CENTRAL EUROPE 2Q W 4. Prereq 102 or =. A college course in modern European history. (321) The growth and development of the states of Central Europe and the Balkans since early modern times (1815 and after). (322) The growth of the states of Central Europe and the Balkans from 1815 to the present.

324-325-326 HISTORY OF RUSSIA 3Q A W Su 4. Prereq 102 or =. A college course in modern European history. (324) Beginnings of Russian history to the Russian Revolution of 1905. Russia in World War I. The Revolutions of 1917. The Soviet Regime. (325) The modern and post-war development of France and Spain from the beginning of the 19th century to the present. Some attention will be paid to the development of the other European countries.


HISTORY

as taught at Montana State University is a study of man's past activities with the hope that his knowledge may be learned which will be applicable in solving 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 national and world political situations.

Courses are offered in European, American, Far Eastern, Canadian, and Latin-American History. Many students combine the fields of History and Political Science. A Master of Arts degree in History involving the completion of an acceptable thesis based on original research. Admission to graduate work requires an acceptable academic record as well as the equivalent of an undergraduate major in history.

Occupationally this department helps to prepare men and women for either the domestic or the foreign service of the federal government and for positions in state and local government. It not only provides teachers, lawyers, journalists, and businessmen with the background and the background of their chosen occupations, but also furnishes knowledge and prospective for intelligent leadership in community action.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN HISTORY. In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed by the student majoring in History. A minimum of 84 credits in History is required, to the completion of which includes major courses and electives. The study of Latin is recommended in fulfilling the upper division credits for the B.A. History major. The student must elect a minor in 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. A minimum of 84 credits must be selected from courses numbered over 300, including either History 401 or Political Science 491. No more than 25 credits History 491 or 492 will be paid to a Minor in History.

Either the completion of five quarters of a foreign language or the completion of 20 credits of coursework, including knowledge of the languages, 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 each in two languages.

In the final year in the Department, each major must pass a Senior Comprehensive examination.
333 ECONOMIC HISTORY OF EUROPE 1Q A Su 4. The economic development of Europe from the early Middle Ages to the present time.

334 MODERN WAR AND WESTERN SOCIETY 1Q S Su 3 Prereq 3 or C, or 201, 246. A history of warfare from the French Revolution. Emphasis is placed on relationships of government and military command, on problems of strategy, and on theories of war.


339 HISTORY OF CANADA 1Q A 4, Su 3 Prereq 102, 241, or 251. A unified account of the history of Canada to the present time with emphasis on Canadian-American diplomatic and economic relations; the growth of the Canadian West.

345-346 ENGLISH CONSTITUTIONAL HISTORY 2Q A W 3 Prereq 241-242. (345) English constitutional development to the end of the Middle Ages. (346) English constitutional development since the Middle Ages.

348 ECONOMIC HISTORY OF ENGLAND 1Q A Su 4 Prereq 241-242. The economic growth and development of modern England; the growth of Empire.

353 AMERICAN COLONIAL HISTORY 1Q W 4 Prereq 242 or 251. Discovery and settlement; development of colonial society; government and the colonies in America; Anglo-French rivalry in America; the British colonial system and colonial administration.

354 THE AMERICAN REVOLUTION 1Q S 3 Prereq 242 or 251. Causes and development of the American Revolution; the Declaration of Independence; organization of state governments; the federalization, western lands, finance, commerce; the Constitutional Convention.

355 THE AGE OF JEFFERSON 1Q A Su 3 Prereq 251. The early national period concentrating on the development of the federal government, and significance of the Federalists and Jeffersonians.

356 THE AGE OF JACKSON 1Q W Su 3 Prereq 252. American history, 1815 to 1844, emphasizing the growth, significance and decline of Jacksonian democracy.

357 CIVIL WAR AND RECONSTRUCTION 1Q W Su 3 Prereq 252. American history in the mid-nineteenth century, detailing the causes, events and aftermath of the Civil War.

359 RECENT AMERICAN HISTORY 1Q S 4, Su 3 Prereq two quarters of United States history. The internal affairs and external relationships of the United States in the 20th century.

360-361 SOCIAL AND CULTURAL HISTORY OF THE UNITED STATES 3Q A W S 3 Prereq 251-252-253. (360) An examination of American social problems in the changing forces leading social, religious, literary, and philosophical ideals; (361) continuation of 360; (362) continuation of 361.

365 NORTH AMERICAN FRONTIERS 1Q A 3 Prereq 251-252. From the first settlements on the continent to the end of the 19th century. Emphasis is placed on the political, economic, and social factors and the interplay between the frontier and the older regions of the United States and Europe.


369 MONTANA HISTORY 1Q A Su 3 Prereq two quarters of United States history. Exploration, the fur trade and the mission period; early settlements, gold mining, the development of territorial and state government, water and power, transportation, agriculture; the economic, political and social systems of modern times.


372 HISTORIC SITES 1Q S Su V 1-3 R-3 Prereq either 365 or 367 or 368 or 380. The location and evaluation of historic sites in Montana and the Northern United States. Field trips under the joint supervision of archaeologists and historians.

374 ECONOMIC HISTORY OF THE UNITED STATES 1Q S 4. Colonial economy: the expansion of the United States; industrial and agricultural development; the business cycle; the labor movement; the great depression, the Second World War and after.

376 CONSTITUTIONAL HISTORY OF THE UNITED STATES 1Q S 4 Prereq 251-252. The origin and growth of the constitution with emphasis on the role of the Supreme Court in United States history.


391 EUROPEAN HISTORICAL THOUGHT 1Q A Su 2 Prereq 25 cr in History. The contributions of leading 19th-century European historians to the development of modern historical analysis and interpretation.

492 PROBLEMS IN AMERICAN HISTORIOGRAPHY 1Q S Su 2 Prereq 25 cr in History. Study of the contrasts in historical interpretation by selecting problems ranging from colonial to contemporary periods.

FOR GRADUATES

591 METHODS OF HISTORICAL RESEARCH 1Q A 2. Annotation, bibliography, and the analysis of source materials.

697 SEMINAR IN EUROPEAN HISTORY a/q V R-10 Prereq 30 cr in History including 491. Special problems in European history.

698 SEMINAR IN AMERICAN HISTORY a/q V R-10. Open to graduates who have 30 cr in History including 491. Special problems in American History.

699 THESIS a/q V R-15.

HOME ECONOMICS

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 several fields of concentration as is indicated in the copy following.

HOME Economics offers a program of education for personal and family life as a part of general education for majors and non-majors. Opportunities for graduates are many and varied. Positions may be with schools, hospitals, industrial concerns, manufacturers of food or appliances, utility 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.

Students who qualify may earn the Master of Education degree with a major emphasis in home economics. (See Master of Education degree.)

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN HOME ECONOMICS. A minimum of 50 credits in Home Economics selected as follows:

Required for all majors: Home Economics 162, 141, 155, 216, 246, 302, 305, 309, 310, and 366.

The following courses are required according to the area of interest selected by the student.

1. GENERAL: Home Economics 151, 157, 238 or 308, 303, 368 and 367.

2. TEACHING: Home Economics 151, 157, 258 or 358, 302, 303, 305, 306, 344, 366; Education 260, 205, 305, 465, 407; Special Methods to be taken in either Education or Home Economics 231, 431. These courses plus electives, combined with a teaching minor, will prepare teachers for the state certification in home economics. Home Economics 342, 348, 406, 431, 432, and 435.


4. AMERICAN DIETETIC ASSOCIATION INTERNSHIP: These requirements are variable. Students should consult their advisers.


6. COMBINED PROGRAMS: Students wishing to combine Home Economics with Journalism, Business, Radio or TV, or other fields should also consult with an adviser in the other area of interest.

SUGGESTED CURRICULUM IN HOME ECONOMICS

Freshman Year

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(1) Students whose area of interest is Foods and Nutrition, Clothing and Textiles, or Dietetic Internship Training should elect Chemistry.
FOR UNDERGRADUATES

For explanation see Index under “Symbols”

102. INTRODUCTION TO PERSONAL AND FAMILY LIVING
  1Q A W S 3 (3-0). A general course emphasizing personal development as well as factors which affect family and social relationships. Open to both men and women.

105. HOME CRAFTS 3Q a/q 1 (0-2). Selected homemaking skills. Offered by various instructors under different titles.

141. FOODS 1Q A W S 5 (3-4) The production, selection and preparation of food.

146. ELEMENTARY NUTRITION 1Q W S 4 (4-0). Fundamental principles of adequate human nutrition. Non-majors only.

151. CLOTHING SELECTION 1Q A W S 2 (2-0). Artistic and economic factors in the selection of clothing.

155. TEXTILE SELECTION 1Q A W S 3 (2-2). Fabrics for family clothing and home furnishings. Analysis of fibers, yarns, weaves and finishes.

157. PRINCIPLES OF CLOTHING CONSTRUCTION 1Q A W S 3 (3-4). Basic construction and fitting principles applied to planning and making garments.

210. HOUSEHOLD EQUIPMENT 1Q A S 3 (2-2). The production, selection and use of household equipment. Home mechanics.

246. NUTRITION 1Q A 4 (3-2) Prereq Chem 101. Dietetics given in the light of the chemistry and physiology of digestion.

238. CLOTHING FOR THE FAMILY 1Q A W S 3 (2-4) Prereq 157 and Art 125. Principles of advanced clothing construction, analysis of patterns and fitting problems, and consideration of economic, psychological and sociological factors in selection of clothing.

249. WEAVING 1Q S 2 (1-3) Prereq Art 125. Weaving on various types of looms.

344. FOOD CONSERVATION 1Q W 2 (1-2) Prereq 141. Scientific methods in the care and treatment of foods.

431. LARGE QUANTITY COOKERY 1Q A 4 (3-3) Prereq 141, 210. Application of principles of cookery to large quantity food preparation; menu planning for institutions.

FOR UNDERGRADUATES AND GRADUATES

302. HOME PLANNING 1Q W 3 (2-2) Prereq 210 and Art 125. Practical problems in planning a home.

303. INTERIOR DESIGN AND FURNISHINGS 1Q W S 5 (4-2) Prereq 302. Historic development and contemporary use of materials and furnishings in interior design, emphasizing discriminate use of space, color, design selection. Individual furnishing projects.

305. MEAL MANAGEMENT 1Q W S 3 (2-4) Prereq 141, 246. Nutritional and social aspects of family meals, with emphasis on time, energy, money, and equipment management.

306. PROBLEMS OF THE CONSUMER 1Q A 2 (3-0) Prereq 305. Analysis of problems confronting the consumer.

309. HOME MANAGEMENT 1Q A W S 3 (3-0). Open to non-majors. Management studies and discussion presented in problems of the home.

310. HOME LIVING CENTER 1Q A W S 4 Prereq 246 and 309. Residence in the living center. Management of the home.

321. METHODS OF TEACHING HOME ECONOMICS 1Q W S 3 (3-0) Prereq 102, 141, 157, and Educ 305. The fundamental principles of organization, unit planning, and method of presentation of subject matter. (Home Econ majors should take this course as Educ 321.)

342. EXPERIMENTAL FOODS 1Q S 3 (1-4) Prereq 141. Foods from the experimental point of view. Special problems are assigned for individual investigation.

348. CHILD NUTRITION 1Q W S 3 (3-0) Prereq 146 or 246. The science of human nutrition as it applies to children.

352. HISTORY OF CLOTHING AND TEXTILES 1Q A 3 (3-0). Historic costumes and textiles and their influences on modern dress and fabrics.

358. ADVANCED CLOTHING PROBLEMS 1Q A W S 3 (3-4) Prereq 197. The application of modern principles used in the construction of tailored garments. Experimentation with a variety of techniques and fabrics.

360. CLOTHING DESIGN 1Q A S 3 (2-2) Prereq Art 125. Art principles applied to designing family clothing. Adaptation of commercial patterns to original designs through flat pattern methods.

369. ADVANCED TEXTILES 1Q S 3 (2-2) Prereq 155. Developments in fibers and finishes, legislation, and standardization. Comparison and evaluation of textiles.

367. HUMAN DEVELOPMENT 1Q W S 3 (3-0) Prereq 110. The school-age child in home, school and neighborhood.

368. HUMAN DEVELOPMENT AND FAMILY RELATIONSHIPS 1Q S 3 (3-0) Prereq 110. The adolescent and young adult in home, school and community. Problems of aging.

396. NUTRITION IN DISEASE 1Q S 4 (3-2) Prereq 246. The symptoms of diseases, prophylaxis and feeding in disease.

421. ADVANCED PROBLEMS IN TEACHING HOME ECONOMICS 1Q A S 3 (3-0) Prereq 321, Educ 405. Preparation for homemaking education in the upper grades and in high school.

432. LARGE QUANTITY BUYING 1Q W S 3 (3-0) Prereq 431. Selection, purchase and storage of foods for institutions.

433. INSTITUTION ORGANIZATION AND MANAGEMENT 1Q S 3 (3-0) Prereq 432. Efficient organization and administration of food service units, employment procedures, personnel schedules, records, food cost, and maintenance.

490. PROBLEMS IN HOME ECONOMICS a/q V 1-6 Prereq senior standing in Home Econ. Qualified students may select for any of these majors in Home Economics. Offered by various instructors under different titles.

FOR GRADUATES

501. SEMINAR IN HOME ECONOMICS a/q V 1-5 R 5 Prereq c/l. Group analysis of problems in home economics.

698. THESIS a/q V R 15.

JOURNALISM

is a broad study of the various media of communication, with emphasis on the history, privileges, obligations and responsibilities of the media and the roles 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’s 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, typography, radio-television, magazine and feature writing and editing, public relations, editorial writing, and the international press. Instruction in many courses stresses ethical, 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 29 hours, plus the requirements of his sequence, plus upper class electives to make a total minimum of 135 hours of credit in Journalism. The core curriculum in Journalism, required of all majors, shall consist of Journalism 100, 200, 250, 260, 270, 280, 290, 300, 311, 321, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490. A foreign language is required (see FOREIGN LANGUAGE REQUIREMENT in general section of catalog).

CURRICULUM IN JOURNALISM

Freshman Year

Journ 100—Introduction to Journalism Cr.
Eng 101-102-103—Freshman Composition 9
ROTC 101-102-103—Military Science or Air Sci (Men) 2-4
H&PE 100 (3 quarters)—Health and Physical Education 3
Additional courses to meet University requirements 31-36

Sophomore Year

Journ 270—Reporting 3
Journ 290—History and Principles of Journalism 3
ROTC 201-202-203—Military Science or Air Sci (Men) 4-5
H&PE 100 (3 quarters)—Health and Physical Education 3
Additional courses to meet University requirements 35-42

Junior and Senior Years

Journ 360—Principles of Advertising 3
Journ 361—Advertising Sales 2
Journ 371—Advanced Reporting 2
Journ 372—Specialized-Interest Reporting 2
Journ 380—News Editing 3
Journ 381—Advanced News Editing 2
Journ 491-492-493—Senior Seminar 6
Journ Electives (including sequence requirements) 15-25
Additional Electives 3

Total recommended hours in Journalism 90-110
Total recommended hours in General Education 135
Total recommended hours 185

JOURNALISM CURRICULUM

NEWS-EDITORIAL SEQUENCE: Additional 9 hours required to be chosen from Radio-Television 340; Journalism 350, 351, 352, 360, 364. 

ADVERTISING SEQUENCE: An additional 9 hours required to be chosen from Journalism 362, 363, 364 and Radio-Television 345.

MAGAZINE SEQUENCE: An additional 9 hours required to be chosen from Journalism 327, 332, 333, 334.

RADIO-TELEVISION SEQUENCE: An additional 9 hours required to be chosen from Radio-Television 242; Journalism 345, 346, 348.

COMMUNITY JOURNALISM SEQUENCE: An additional 9 hours required to be chosen from Journalism 350, 351, 352, 364, 495.

Note: Students wishing to major primarily in radio or television journalism should take the radio-television sequence in Journalism. The candidate for a B.A. degree in Journalism may take a course in Journalism 342. The candidate for a B.A. degree in Radio-Television may take a course in Journalism 327.

FOR UNDERGRADUATES

For explanation see Index under "Symbols".

100 INTRODUCTION TO JOURNALISM 1Q A W S Su 3. Open to non-majors. History, organization, techniques and responsibilities of the media of mass communication, with emphasis on the newspaper.

128 TYPOGRAPHY 1Q A W S Su 2. Prereq c/l. Problems of typographical design and application. Elementary work in printing and in the handling of type.


227 ELEMENTARY PHOTOGRAPHY 1Q A W S Su 3. Prereq c/l. Open to non-majors. Photographic equipment, materials and facilities with practice in taking of pictures under varied conditions and processing of films and prints.

270 REPORTING 1Q A W S 2. Open to non-majors. Ground-work in gathering, writing and evaluating news.

290 HISTORY AND PRINCIPLES OF JOURNALISM 1Q S 3. Open to non-majors. American journalism from colonial times against a background of U.S. history with attention to the struggle for freedom of expression.

327 NEWS PHOTOGRAPHY 1Q S 3 Prereq 227. Photographic reporting with emphasis on picture possibilities, significance, interest, and impact. Practice with news cameras.

352 MAGAZINE MAKEUP AND EDITING 1Q A 3 Prereq c/l. Open to non-majors. The preparation and practice of editing magazines. Practice includes the use of type and illustrations, and adapting format to content.

333 MAGAZINE ARTICLE WRITING 1Q W Su 3 Prereq c/l. Open to non-majors. Writing and practice of editing articles for magazines of general circulation. Techniques of analyzing and selling to magazine markets.

354 TRADE AND TECHNICAL JOURNALISM 1Q A S 3 Prereq c/l. Open to non-majors. The writing and editing of trade and business journals, technical and specialized publications.

355 PROMOTION AND PUBLIC RELATIONS 1Q A W S Su 3 Prereq c/l. Open to non-majors. The techniques and promotion of trade and public relations.

345 NEWSCASTING 1Q A 3 Prereq 140, 270. Radio and television as news media. Preparation and delivery of radio and television news broadcasts.

346 RADIO-TELEVISION PUBLIC AFFAIRS 1Q W 3 Prereq 345. Radio and television special events and information programs, commentaries, sports, interviews and interpretation. Practice in newscasting.


352 NEWSPAPER MANAGEMENT 1Q A W S 3 Prereq 360. Problems of operation of daily and weekly newspapers.

360 PRINCIPLES OF ADVERTISING 1Q A 3. Open to non-majors. Theory and techniques with emphasis on the role of advertising as it applies to the producer, consumer, and distributor.

361 ADVERTISING SALES 1Q A W S 2. Prereq 360 or concurrent registration. Preparation, promotion, and sales of advertising. Lecture and newspaper staff work.

362 ADVERTISING MEDIA 1Q W 3 Prereq c/l. Open to non-majors. Evaluation of advertising media; rate structures and preparation of advertising and schedules.

363 ADVERTISING LAYOUT AND COPY 1Q S 3 Prereq 360. Open to non-majors. Application of typographical and advertising principles to preparation of layouts and copy.

364 RETAIL STORE ADVERTISING 1Q S 3 Prereq 360. Open to non-majors. Integration of retail store merchandising among advertising media. Technical aspects of advertising schedules for retail stores.

371 ADVANCED REPORTING 1Q A W S 2 Prereq 270. News coverage, reporting and publishing problems.

372 SPECIALIZED REPORTING 1Q A W S 2 Prereq 371. Specialization in fields of depth reporting.

379 NEWS EDITING 1Q A W S 2. Prereq 270. Instruction and practice in revision of copy, headline writing, use of references and principles of local and wire news editing.

381 ADVANCED NEWS EDITING 1Q A W S 2 Prereq 380. Editing and makeup problems.

FOR UNDERGRADUATES AND GRADUATES

316 SCHOOL PUBLICATIONS 1Q E S Su 2. Prereq c/l. Open to non-majors. For students who plan to teach journalism courses in high schools or act as advisors to school publications.

317 SCHOOL PUBLIC RELATIONS 1Q Su only 3. Prereq B.A. degree or teacher certification. The principles of developing better understanding among the school, the press, and the community. For school administrators and teachers.

390 PUBLIC OPINION 1Q A W S 3. Open to non-majors. Theories of public opinion; factors involved in its formation, and methods used in its measurement.

397 LAW OF JOURNALISM 1Q S 3. Legal guarantees and limitations of the right to gather and publish news and to communicate it.

399 ADVANCED JOURNALISM PROBLEMS 1-3Q A W S Su V Prereq consent of the dean. Training and research in advanced journalism problems.

440 CINEMATOGRAPHY 1Q S 3. Prereq 127 or , and 12 hours in Radio-television courses. Motion picture news photography. Film for television.

470 REPORTING PUBLIC AFFAIRS 1Q W 3. Laboratory work in coverage of political and governmental news at the city, county, state, and federal levels.

491-492-493 SENIOR SEMINAR 3Q A W S 2 Prereq senior standing in Journalism. Investigation and research methods of editing, study of several aspects of American society which constitute the background for many news stories, and practice in research methods.

495 EDITORIAL WRITING 1Q S 3. The editorial pages of leading newspapers; practice in research and the writing of editorials.
LAW

is the study of the official rules and regulations under which people live in organized American society; of the methods by which such rules are devised and applied; of the craft that lawyers, judges, and public officials play in the application of such rules; and of the specialized techniques, practices, and procedures involved.

Law studies primarily involve preparation and class recitations and lectures on the basis of illustrative court opinions collected in course "casebooks." Special attention is also given to practice court work, in which the students are required to prepare and try cases as well as argue appeals. There is also training in the use of law books and in legal writing. The curriculum is designed to afford preparation for practice anywhere in the United States, but attention is also given to the law of Montana.

The Supreme Court of Montana admits graduates to practice without examination. Most graduates become practicing attorneys. Others enter government service, business, or finance with or without additional studies in these latter fields. Some take advanced or more specialized studies (such as taxation) at eastern institutions; graduates with the required scholarship standing are readily accepted by other law schools specializing in more advanced legal education. They are also to be found in the ranks of leading practitioners in many large cities of the United States.

CALENDAR

FALL SEMESTER, 1963

September 23-24, Monday and Tuesday Orientation of New Law Students
September 24, Tuesday Registration
September 25, Wednesday Classes begin at 9:00 a.m.
November 11, Monday Veterans' Day—No classes
November 27, Wednesday Thanksgiving vacation begins after last class
December 2, Monday Classes resume at 8:00 a.m.
December 21, Saturday Christmas vacation begins after last class
January 6, 1964, Monday Classes resume at 8:00 a.m.
January 27-February 4, Monday through Saturday Semester Examinations

SPRING SEMESTER, 1964

February 5, Wednesday Registration
February 6, Thursday Classes begin at 9:00 a.m.
March 21, Saturday Spring vacation begins after last class
March 29, Monday Classes resume at 8:00 a.m.
May 26-June 2, Tuesday through Tuesday Semester Examinations
June 8, Monday Commencement

FALL SEMESTER, 1964

September 21-22, Monday and Tuesday Orientation of New Law Students
September 22, Tuesday Registration
September 25, Wednesday Classes begin at 9:00 a.m.
November 11, Wednesday President's Day—No classes
November 25, Wednesday Thanksgiving vacation begins after last class
November 30, Monday Classes resume at 8:00 a.m.
December 19, Saturday Christmas vacation begins after last class
January 4, 1965, Monday Classes resume at 8:00 a.m.
January 29-30, Monday through Saturday Semester Examinations

SPRING SEMESTER, 1965

February 3, Wednesday Registration
February 19, Monday Classes begin at 8:00 a.m.
March 20, Saturday Spring vacation begins after last class
March 29, Monday Classes resume at 8:00 a.m.
May 25-June 1, Tuesday through Tuesday Semester Examinations
June 6, Monday Commencement

GENERAL STATEMENT: The Law School is accredited by the American Bar Association and the Association of American Law Schools. Organization of instruction is on a semester basis, with the school year being divided into two semesters of approximately eighteen weeks each, including vacation periods. For detailed information concerning facilities, descriptions of courses, and miscellaneous administrative regulations the applicant should consult the Law School Bulletin.

REQUIREMENTS FOR ADMISSION: The Law faculty passes on all applications for admission to the Law School. Each applicant for the Law School must establish (1) that he is a graduate of an accredited college or university; (2) that he has completed three years of an approved combination program with a minimum index of 2.0 in all work for which he has registered and received a grade or (3) that he has completed, in an approved college or university, three fourths of the work required for an undergraduate degree with a grade equivalent of B (3.0) or better. (3) with the exception that he has demonstrated that he qualify for such degree prior to receiving a Law degree. Non-theory courses are not acceptable under the provisions of subdivision (3). In addition to the foregoing requirements, no applicant will be admitted who has demonstrated a lack of capacity for self expression as evidenced, for example, by failure to achieve at least average grades in (A) Law courses, (B) English composition. In view of the fact that graduates of the Law School are admitted to practice in Montana without taking a bar examination, an applicant from a school other than Montana State University who has not completed his college work is not to be considered unless he has demonstrated a version scholastic average and is exceptionally qualified to pursue the study of law. An applicant enrolled in an approved combination program who has qualified 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 Office of Admissions, Princeton, New Jersey.

A number of combination programs have been formulated by the Law School in cooperation with various departments of the University. These include Accounting and Law, Business Administration and Law, Economics and Law, Geology and Law, History and Political Science and Law, International Relations and Law, and Sociology and Law. Combination programs in other departments, if duly authorized, will be recognized. Students enrolled in approved combination programs receive an undergraduate degree of their department at the beginning of the third year 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 with a major in law must secure prior approval of their contemplated course of study from the Dean of the Law School. It is strongly recommended that all prospective applicants present to the School complete Latin 101-102-103 and Accounting 201-202 and 406.

Special students are not admitted to the Law School. Students otherwise qualified for admission may register for selected courses as non-law students at the discretion of the Dean of the Law School and the instructor of the course.

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 of the University, the applicant must submit to the Law School (a) an original transcript of all college work previously undertaken; (b) a verified questionnaire, on a form prescribed by the Law School, dealing with the moral character and fitness of the applicant; (c) a report of his grade on the Law School Admission Test; and (d) a passport size photo.

A fee of $15.00 must be paid at the time of making application. No refunds will be made, but upon matriculation, if the student enters the semester indicated on the application for admission, this fee will be credited as the registration fee as described under Financial Obligations earlier in the catalog.

ADMISSION TO ADVANCED STANDING: Applicants for admission to the Law School with advanced standing must satisfy the requirements for admission to the Law School (1) that he has registered and received a grade equivalent to that required for graduation from the institution attended; (2) that the average in all law work for which he has registered and received a grade is a B (3.0) or better; (3) that the applicant is a graduate of an accredited law school; (4) that the applicant has not undertaken another law school program previously attended; and (4) the applicant is eligible to continue in this Law School under the policies specified herein. An applicant is not likely to be admitted unless he has a very high scholastic average in the law work previously taken and is exceptionally qualified to pursue the study of law.
BASIS FOR EXCLUSION: (1) Failures: A student who has failed, or is failing, in more than 10 credits at the end of the first or second semester of law study will be automatically dropped from the Law School. (2) Weighted Average: A student otherwise eligible to continue, who has obtained an index of 1.5 or less at the end of his first two semesters of law study in all law courses for which he has registered and received a grade, will be dropped. A student otherwise eligible to continue, who has obtained an index between 1.5 and 2.0 at the end of 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 any semester subsequent to being placed on probation, will be dropped from the Law School.

A student who fails to obtain an index of 2.0 at the end of his fourth semester of law study in all law courses for which he has registered and received a grade, or fails to maintain such an index thereafter, will be dropped from the Law School.

The faculty reserves the right to require a student to repeat any course in which he has received a grade lower than C, but no course may be repeated without the approval of the faculty.

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 six semesters in residence at an approved law school, the last two of which must be at Montana State University; (3) complete ninety semester hours of law with an index of 2.0 in all law courses for which the student has registered and received a grade; and (4) complete the following required courses: all courses taught in the first and second years except Law Review I, as required in the program in inspection between the first and second years.

A candidate for the degree of Bachelor of Laws who has fulfilled the requirements for graduation will not be recommended 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

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>First Semester</th>
<th>Second Semester</th>
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<tr>
<td>505-600</td>
<td>Civil Procedure I</td>
<td>2</td>
<td>3</td>
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<tr>
<td>511-512</td>
<td>Contracts I, II</td>
<td>3</td>
<td>3</td>
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<tr>
<td>513-514</td>
<td>Civil Procedure</td>
<td>3</td>
<td>3</td>
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<tr>
<td>531-532</td>
<td>Introduction to Law I, II</td>
<td>1</td>
<td>2</td>
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<tr>
<td>555-556</td>
<td>Property I, II</td>
<td>2</td>
<td>4</td>
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<tr>
<td>540-541</td>
<td>Remedies</td>
<td>4</td>
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<tr>
<td>543-544</td>
<td>Torts I, II</td>
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SECOND YEAR

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<thead>
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<tr>
<td>533-534</td>
<td>Agency and Business Organizations I, II</td>
<td>3</td>
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<tr>
<td>557-558</td>
<td>Civil Procedure</td>
<td>3</td>
<td>3</td>
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<tr>
<td>559-560</td>
<td>Commercial Transactions I, II</td>
<td>2</td>
<td>4</td>
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<tr>
<td>569-570</td>
<td>Constitutional Law</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>573</td>
<td>Evidence</td>
<td>4</td>
<td>2</td>
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<tr>
<td>572</td>
<td>Law Review I</td>
<td>1</td>
<td>2</td>
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<tr>
<td>583-584</td>
<td>Legal Writing I, II</td>
<td>1</td>
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<tr>
<td>590</td>
<td>Professional Responsibility</td>
<td>1</td>
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THIRD YEAR

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<tr>
<td>696-698</td>
<td>Administrative Law</td>
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<tr>
<td>610-610</td>
<td>Conflicts</td>
<td>2</td>
</tr>
<tr>
<td>615-616</td>
<td>Court Room and Office Practice I, II</td>
<td>1</td>
</tr>
<tr>
<td>620-620</td>
<td>Creditors' Rights</td>
<td>2</td>
</tr>
<tr>
<td>625</td>
<td>Criminal Procedure</td>
<td>2</td>
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<tr>
<td>631-632</td>
<td>Federal Taxation I, II</td>
<td>2</td>
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<tr>
<td>639</td>
<td>Jurisprudence</td>
<td>2</td>
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<tr>
<td>641</td>
<td>Labor Law</td>
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<td>643-644</td>
<td>Law Review II</td>
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<td>646-648</td>
<td>Legal Writing III</td>
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<tr>
<td>649-650</td>
<td>Legislation</td>
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<tr>
<td>650-651</td>
<td>Mining Law (Seminar)</td>
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<tr>
<td>652</td>
<td>Municipal Corporations (Seminar)</td>
<td>2</td>
</tr>
<tr>
<td>659-660</td>
<td>Oil and Gas</td>
<td>2</td>
</tr>
<tr>
<td>661-662</td>
<td>Secured Transactions</td>
<td>3</td>
</tr>
<tr>
<td>667-668</td>
<td>Social Legislation (Seminar)</td>
<td>2</td>
</tr>
<tr>
<td>671</td>
<td>Trade Regulations (Seminar)</td>
<td>2</td>
</tr>
<tr>
<td>681-682</td>
<td>Water Law</td>
<td>2</td>
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*Required courses

COURSES

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<tr>
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<tbody>
<tr>
<td>569-570</td>
<td>Estate Planning I, II</td>
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<tr>
<td>573-574</td>
<td>Wills and Trusts</td>
<td>2</td>
</tr>
<tr>
<td>575</td>
<td>Taxation</td>
<td>2</td>
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<tr>
<td>576-577</td>
<td>Property</td>
<td>2</td>
</tr>
<tr>
<td>578-579</td>
<td>Real Property</td>
<td>2</td>
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<tr>
<td>580</td>
<td>Constitutional Law</td>
<td>2</td>
</tr>
<tr>
<td>581-582</td>
<td>Civil Procedure</td>
<td>2</td>
</tr>
<tr>
<td>583-584</td>
<td>Legal Writing</td>
<td>2</td>
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<tr>
<td>585-586</td>
<td>Commercial Transactions</td>
<td>2</td>
</tr>
<tr>
<td>587-588</td>
<td>Constitutional Law</td>
<td>2</td>
</tr>
</tbody>
</table>

COMMERICAL TRANSACTIONS I, II 2 Sem A 2, S 3.

561-562
Continues. Commercial practices in the marketing of goods and in the issuance and transfer of commercial paper including negotiable promissory notes, bills of exchange, checks and bank drafts.

CONFLICTS 1 Sem S 4.

510
The choice of laws problems, that is, which of several laws should be applied when the issues arise out of a transaction or a relationship which is affected by the laws of several different states.

CONSTITUTIONAL LAW 1 Sem S 4.

564
The place of written constitutions in our legal system and the judicial function of interpreting written constitutions.

CONTRACTS I, II 2 Sem A 3, S 3.

511-512
Continues. The formation of the contract and the elements of mutual assent, consideration, assignments and discharge.

COURT ROOM AND OFFICE PRACTICE I, II 2 Sem A 1, S 1.

615-616
Established patterns in office procedure, in uncontested legal proceedings and in trial techniques.

CREDITORS' RIGHTS 1 Sem S 2.

620
The procedures and methods whereby a creditor obtains recovery from a debtor with emphasis upon bankruptcy.

CRIMINAL LAW 1 Sem A 3.

515
Crimes with emphasis upon the criminal act, the requirement and character of criminal intent and limitation upon criminal responsibility.

CRIMINAL PROCEDURE 1 Sem A 2.

625
Investigation and prosecution of alleged offenders with emphasis upon arrest, bail, indictments, trials and post conviction remedies.

ESTATE PLANNING I, II 2 Sem A 3, S 3.

569-570
The will and of future interests in property as devices in the transfer of property at death or prior to death.

EVIDENCE 1 Sem A 4.

573
The production and presentation of evidence in the course of a trial.

FEDERAL TAXATION 1 Sem A 4.

631
The federal income tax relating to individual trusts, partnerships and corporations.

FEDERAL TAXATION II 1 Sem S 2.

632
The federal estate and gift tax laws.

INTRODUCTION TO LAW I, II 2 Sem A 1, S 2.

531-532
Laws and their use and the preparation of legal memoranda and reports with emphasis upon legal writing.

JURISPRUDENCE 1 Sem S 2.

638
The nature and purposes of law and the nature and function of the judicial process.

LABOR LAW 1 Sem A 2.

641
The elements of collective bargaining and labor management relations.

LABOR LAW II 2 Sem A 2, S 2.

572-574
Laws relating to collective bargaining and labor management relations.

MINING LAW 1 Sem S 2.

650
Location of mining claims, patent procedure and limitations upon extractions of precious minerals.

MUNICIPAL CORPORATIONS 1 Sem A 2.

653
The administration of government upon local governing bodies and their relationships with their state and federal counterparts.

OIL AND GAS 1 Sem A 3.

661
The production, conservation and transportation of petroleum.

PROFESSIONAL RESPONSIBILITY 1 Sem S 2.

590
The lawyer as counselor, advocate, citizen and public servant with emphasis on the nature and extent of professional responsibility.

PROPERTY I 1 Sem A 2.

535
The law of personal property, possession, and the requisites for acquiring title to land.

PROPERTY II 1 Sem S 4.

536
The transfer of interests in real property.

REMEDIES 1 Sem S 3.

540
The judicial remedies available for injunction, personal remedies and property rights in breach of enforceable agreements, and for transactions induced by misrepresentation or mistake.

SECURED TRANSACTIONS 1 Sem A 3.

671
The use of real property security and the nature and foreclosure of mortgages.

SOCIAL LEGISLATION 1 Sem S 2.

576
Social security, workmen's compensation, unemployment compensation and wages and hours legislation.

TORTS I, II 2 Sem A 3, S 3.

543-544
Continues. Private civil wrongs other than breach of contract for which a court of law will award damages.

TRADE REGULATIONS 1 Sem A 2.

661
The regulation of private business with emphasis upon monopoly, anti-trust, trademarks and unfair competition.

WATER LAW 1 Sem S 2.

688
The appropriation and use of water and of the relative rights of federal and state governments in the use of this natural resource.
LIBERAL ARTS

The Liberal Arts Curriculum includes Literature, Philosophy, Art, Foreign Languages and the Social Sciences. The latter includes Anthropology, Economics, History, Political Science, Sociology and Geography.

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

This curriculum is designed for the student who wants a liberal education with emphasis on the humanities and social sciences. It also provides a broad background for students who wish to teach or do further teaching. Those who elect to teach may qualify to do so by taking additional work in education.

Students must have completed, or be eligible for, English 101 in order to major in this program. Underclassmen transferring into this program should have at least a C average in all credits attempted. The liberal arts curriculum is not designed for the student who is undecided as to his major.

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

<table>
<thead>
<tr>
<th>University requirements</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition 101-102-103</td>
<td>9</td>
</tr>
<tr>
<td>Group I (Lab sciences and mathematics recommended)</td>
<td>12</td>
</tr>
<tr>
<td>Foreign Languages</td>
<td>23 or 30</td>
</tr>
<tr>
<td>Physical Education (16 quarters)</td>
<td>9</td>
</tr>
<tr>
<td>Military Science (men)</td>
<td>6-9</td>
</tr>
<tr>
<td>Military Science (women)</td>
<td>30-66</td>
</tr>
<tr>
<td>Major Requirements (courses under 300)</td>
<td>9</td>
</tr>
<tr>
<td>1. Art 231-232-233</td>
<td>9</td>
</tr>
<tr>
<td>2. Humanities (General 151-152-153)</td>
<td>9</td>
</tr>
<tr>
<td>3. Anthropology, Economics, Geography, Psychology, Sociology, (any two)</td>
<td>15</td>
</tr>
<tr>
<td>4. History or Political Science or both (History 101-102-103 or 201-202-203 recommended)</td>
<td>15</td>
</tr>
<tr>
<td>5. Literature (English 211-212-213 and 231-232-233 recommended)</td>
<td>12</td>
</tr>
<tr>
<td>6. Philosophy (Philosophy 201-202-203 recommended)</td>
<td>10</td>
</tr>
<tr>
<td>Major Requirements (Courses 300 and above)</td>
<td>70</td>
</tr>
</tbody>
</table>
| In two of the following three fields the student elects upper division courses equal to the number of credits indicated for those fields:
| Anthropology, Economics, Geography, Psychology, Sociology, (any two) | 24      |
| History or Political Science or both                       | 24      |
| Literature or Philosophy or both                           | 24      |
| Electives                                                   | 18-2    |
| Total                                                       | 156     |

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 work in larger libraries. The course is 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 catalog, the following special requirements must be completed for the Bachelor of Arts with a major in Library Service:

<table>
<thead>
<tr>
<th>Major Requirements (Courses 300 and above)</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition 101-102-103</td>
<td>9</td>
</tr>
<tr>
<td>History 101-102-103 Development of Western Civilization</td>
<td>15</td>
</tr>
<tr>
<td>French or German 101, 102, 103 Elementary French or German</td>
<td>15</td>
</tr>
<tr>
<td>Psychology 110 Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>H&amp;PE 100 (3 quarters)</td>
<td>2-4</td>
</tr>
<tr>
<td>Total</td>
<td>49 or 51</td>
</tr>
</tbody>
</table>

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN MATHEMATICS. In addition to the general requirements for graduation listed earlier in the catalog, the following special requirements must be completed for the Bachelor of Arts Degree with a major in Mathematics: Math 116 or exemption, 118, 201, 202, 203. A foreign language: French, German, or Russian (or a combination of them) is required.

1. Students planning to enter graduate work or industry are required to take Mathematics 209, 310, 311, 312, 313, 314, 314, and six credits in other advanced Mathematics courses, including three credits in courses numbered above 300. Students select areas in sciences from Botany, Chemistry, Geology, Microbiology, Physics,

\[ \sqrt{7}d^2 \]
or Zoology, and must present 15 credits in one science and 18 credits in the other selected science. The student may substitute French, German, or Russian for one of these sciences, provided that the language substitute is not the same as the language required listed earlier in the catalog. An alternative to the requirement of two sciences is possible for those students interested in the language requirement listed earlier in the catalog. The language requirement listed earlier in the catalog is for the student to present a second major in one of the schools or departments within the University.

2. Students selecting the teaching option are required to take Mathematics 253, 300, and 310, and 3 credits in other approved Mathematics courses numbered above 300.

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

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

INTERMEDIATE ALGEBRA 1Q A W S 2. (Credit not allowed toward a degree in Mathematics.)

MATHEMATICS FOR BUSINESS STUDENTS 1Q W S S Prereq 100 or exemption by examination. Selected topics from algebra including mathematical induction, arithmetic and geometric progressions, annuities, solutions of systems of linear equations and inequalities, linear programming. (Credit not allowed for both 112 and 116.)

TRIGONOMETRY 1Q A W S Su 3 Prereq 100 or exemption by examination. Trigonometric functions and their graphs, radian measure, Pythagorean identities, addition formulas, law of sines and cosines, inverse functions and their graphs. (Credit not allowed toward degree in Mathematics.)

COLLEGE ALGEBRA 1Q A W S Su 5 Prereq 100 or exemption by examination. Algebraic structure of the real number system, functions and relations, linear inequalities, systems of linear equations, elementary theory of equations. (Credit not allowed for both 116 and 118.)

INTRODUCTION TO ANALYTIC GEOMETRY AND CALCULUS 1Q A W S 5 Prereq 116 or 118 or exemption by examination. (113 may be taken concurrently). Elementary analytic geometry, function, limit, derivative, differentiation of algebraic functions, applications.

STATISTICS 1Q A W S Su 5 Prereq 100 or 112 or satisfactory performance in an examination in intermediate algebra.

THEORY OF ARITHMETIC 1Q A W S 5 Prereq 100 or exemption by examination. Mathematical meaning and background of arithmetic. (Credit not allowed toward a degree in Mathematics.)

INTUITIVE GEOMETRY 1Q W S 4 Prereq 100 or exemption by examination. Intuitive geometric figures as sets of points, separation properties, induction versus induction, measurements, coordinate geometry. (Credit not allowed toward degree in Mathematics.)

DIGITAL COMPUTERS AND CODING 1Q A W S 3 (3-4) Prereq 116. High-speed digital computer, number systems, logic. Laboratory work on high-speed electronic computer. (Credit not allowed toward degree in Mathematics.)

CALCULUS I 1Q A W S 5 Prereq 118. Applications of the derivative, transcendental functions and their derivatives, integration of algebraic functions.

CALCULUS II 1Q A W S 5 Prereq 251. Integration techniques, further application of the derivative and integral. (339 is recommended.)

CALCULUS III 1Q A W S Su 3 Prereq 252. Solid analytic geometry, partial derivatives, multiple integrals, infinite series.

FOR UNDERGRADUATES AND GRADUATES

ALGEBRA FOR TEACHERS 1Q W Su 5 Alternate years Prereq 251 or concurrent registration. The processes of elementary algebra, arithmetic considered from a mature point of view for the teacher of high school algebra.


GEOMETRY FOR TEACHERS 1Q S 5 Alternate years. Prereq c/i. The subject matter of high school geometry compared with that of other geometries.

TOPICS IN MATHEMATICS Su V Prereq 1 year experience in teaching high school geometry. The main purpose of this course is to help high school teachers improve their background in Mathematics. Content varied to meet the needs of the student. (Credit not allowed toward degree in Mathematics.)

HISTORY OF MATHEMATICS 1Q A 4 Prereq 15 credits in Mathematics and c/i.

ADVANCED CALCULUS 3Q A W S 3 Prereq 253.

Sequences of real numbers, continuous functions, partial derivatives, power series. (319) Fourier series, line and surface integrals.
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 chemical, microscopic, bacteriologic and other medical laboratory procedures used in the diagnosis, study and treatment of disease. Four years are required to earn the degree of Bachelor of Science in Medical Technology. The first two years are devoted to the development of a sound foundation in physics, chemistry and biology and in obtaining an understanding of social science and cultural subjects. The last two years are designed to develop efficiency in the fields of microbiology and clinical methods.

To be certified by the Board of Registry, a student after satisfying the minimum course requirements, must have an internship of at least 12 consecutive months in an approved school of Medical Technology endorsed by the American Medical Association. Schools of Medical Technology are located in every state in the Union, the District of Columbia, Puerto Rico and the Canal Zone. After successful completion of the internship, the student receives a diploma from the Board of Registry, certifying his qualification as a medical technologist. Although this Certification is desirable, persons receiving the B.S. in Medical Technology are qualified bacteriologists and can obtain positions in many laboratories as technicians. Medical Technologists are in demand in hospital laboratories, in physicians' offices, research institutions, and in federal and state health departments.

Most medical technology schools require at least 3 years of college work and one year of hospital practice. The curriculum in this department has been arranged so as to allow the student to complete all course requirements during the first three years. It is possible then to take three years of college work and 12 months of hospital practice to be certified by the Board of Registry as a Medical Technologist.

Two options leading to a Bachelor of Science degree in Medical Technology are offered in the Department of Botany and Microbiology. Option I consists of four years of academic studies at the University leading to a B.S. degree in Medical Technology. These students then fulfill the 12 months of hospital practice requested by the Board of Registry. Under Option II the student receives a B.S. in Medical Technology after approximately 3 1/2 years of academic studies at the University plus 12 months of hospital practice. Option I has a decisive advantage in giving the student a broader preparation for Medical Technology and a more balanced liberal education.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, it is recommended that high school preparation include Algebra, Geometry, Trigonometry, Chemistry, Physics and a foreign language.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN MEDICAL TECHNOLOGY. In addition to the general requirements listed earlier in the catalog, the following courses are required for the Bachelor of Science in Medical Technology: Microbiology 101, 202, 302, 405; Zoology 104, 105, 201, 202; Chemistry 121, 122, 123, 245, 261, 262; Math 116. A minimum total of 45 credits from Microbiology courses listed above is required. The following courses is required: Microbiology 305, 320, 331, 341, 401, 402, 403, 404, 405, 406, 407, 408, 410, 420, 430; Zoology 305, 306, 340, 341, 383; Chemistry 346, 347, 370, 394, 401, 482, or any other course approved by the adviser and the chairmen of the Department of Botany and Microbiology.

BASIC MEDICAL TECHNOLOGY CURRICULUM

<table>
<thead>
<tr>
<th>Freshman Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
</tr>
<tr>
<td>Chem 121-122-123—College Chemistry</td>
</tr>
<tr>
<td>Zool 104—105—Elementary Zoology</td>
</tr>
<tr>
<td>Math 116—College Algebra</td>
</tr>
<tr>
<td>Engl 101—102—103—Freshman Composition</td>
</tr>
<tr>
<td>Electives</td>
</tr>
<tr>
<td>H&amp;PE 100—Freshman Phys Ed</td>
</tr>
<tr>
<td>ROTC 101—102—103—Military or Air Science (Men)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
</tr>
<tr>
<td>Microb 202—General Microbiology</td>
</tr>
<tr>
<td>Chem 261-262—Organic Chemistry</td>
</tr>
<tr>
<td>Chem 245—Quantitative Analysis</td>
</tr>
<tr>
<td>Zool 201—Comparative Vert. Anatomy</td>
</tr>
<tr>
<td>Physics 111-112—General Physics</td>
</tr>
<tr>
<td>Electives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
</tr>
<tr>
<td>Microb 302—Medical Microbiology</td>
</tr>
<tr>
<td>Microb 310—Immunology and Serology</td>
</tr>
<tr>
<td>Electives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
</tr>
<tr>
<td>Microb 410—Clinical Diagnosis</td>
</tr>
<tr>
<td>Electives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPTION II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman and Sophomore years same as Option I</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
</tr>
<tr>
<td>Microb 302—Medical Microbiology</td>
</tr>
<tr>
<td>Microb 310—Immunology and Serology</td>
</tr>
<tr>
<td>Electives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
</tr>
<tr>
<td>Microb 410—Clinical Diagnosis</td>
</tr>
<tr>
<td>Electives</td>
</tr>
</tbody>
</table>

MICROBIOLOGY

is the study of bacteria, molds, yeasts, rickettsia, protozoa and viruses. The field includes General, Medical, Sanitary and Industrial Microbiology, Food and Water Microbiology, Immunology, and Serology.

A Bachelor of Arts degree is given in this curriculum. The first two years are spent in building a foundation in Mathematics, Physics, Chemistry, Biology and Social Sciences. The last two years are spent for the most part, in taking courses in Microbiology and related subjects. Senior students who have shown interest and ability during their undergraduate work are encouraged to continue their studies toward an advanced degree. Successful completion of the graduate curriculum may lead to the Master of Arts, the Master of Science and to the Doctor of Philosophy degrees. Any student with a baccalaureate degree in Microbiology, Biological Sciences, Pharmacy, Chemistry or related fields, who has a good undergraduate record, may take graduate work 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 qualify for the Master of Science and to complete the Doctor of Philosophy degrees.

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 catalog, the following courses must be completed for the Bachelor of Arts degree in Microbiology: Microbiology 200, 302, 310, 405; Zoology 104—105 or Botany 121—122; Chemistry 121—122—125, 245, 261—262; Physics 111—112—113; Math 118.

A minimum of 45 credits in the major field is required to receive a baccalaureate degree. This requirement may be satisfied by a successful completion of Microbiology courses listed above and any of the following courses: Microbiology 200, 300, 300, 301, 401, 402, 403,
### SUGGESTED CURRICULUM

#### Freshman Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits (Hours)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cr</td>
<td>Cr</td>
<td>Cr</td>
<td></td>
</tr>
<tr>
<td>Chem 121-122-College Chemistry</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Zool 104-105—Elem Zool or Bot 121-122—Gen Bot</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Engl 101-102—Freshman Composition</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Math 113, 116</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>H&amp;PE 100—Physical Education</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>or</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Sophomore Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits (Hours)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phys 111-112—General Physics</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Chem 261—Quantitative Analysis</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Microbiology 290—General Microbiology</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Electives</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>H&amp;PE 100—Physical Education</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>ROTC 201-202-203—Military or Air Science</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Junior Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits (Hours)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro 310—Immunology and Serology</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Micro 302—Medical Microbiology</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>5</td>
<td>5</td>
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</tr>
<tr>
<td>Electives</td>
<td>10</td>
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</tbody>
</table>

#### Senior Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits (Hours)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro 405—Seminar</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Electives</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

### FOR UNDERGRADUATES

**For explanation see Index under “Symbols”**

1. **ELEMENTARY MICROBIOLOGY** 1Q A S Su 3 (3-0). Morphology, physiology, classification of bacteria, rickettsia and viruses. Importance of microorganisms in food and fermentation industries, agriculture and public health. (Not allowed toward a major in microbiology.)

2. **ELEMENTARY MICROBIOLOGY LABORATORY** 1Q A S Su 2 (0-4). Prereq 100 or concurrent registration. Microbiological examination of foods, water, soil, and air and experiments with microorganisms of medical importance. (Not allowed toward a major in microbiology.)

3. **GENERAL HYGIENE** 1Q S 3 (3-0). Personal hygiene and its effects on the individual and the community. Nutrition, sanitation and prevention of diseases.

4. **PUBLIC HEALTH** 1Q W 2 (2-0). Sanitation problems as they involve health and diseases.

5. **GENERAL MICROBIOLOGY** 1Q A S Su 2 (3-4). Prereq Chem 123 or 199. Bacterial taxonomy, classification, morphology, physiology; effect of environmental factors on bacteria; microbiology of soil, water, milk and foods; and industrial microbiology. (Credit not allowed for both 100 and 200.)

6. **MEDIA PREPARATION** 1Q W 2 (1-3). Prereq 200. Preparation, sterilization and storage of culture media; differential media, function of ingredients, and general nutritional requirements of bacteria.

### FOR UNDERGRADUATES AND GRADUATES

7. **MEDICAL MICROBIOLOGY** 1Q W 5 (3-4). Prereq 200. Pathogenic microorganisms including bacteria, fungi, viruses, and rickettsia.

8. **PHARMACEUTICAL MICROBIOLOGY** 2Q A W S 5 (3-4). Prereq Chem 263, Phys 113 or 223. (300) Pathogenic bacteriology, immunology and chemotherapy as they apply to the field of pharmacy.

9. **IMMUNOLOGY AND SEROLOGY** 1Q S 5 (3-4). Prereq 302. General principles of immunity and extensive laboratory work in serology, animal experimentation, and clinical diagnosis.

10. **MICROBIOLOGY OF WATER AND SEWAGE** 1Q A. On demand 5 (3-4) e/y Prereq 101 or 200 or 303. Microorganisms found in water and sewage; sewage treatment and disposal, and water purification.

11. **FOOD MICROBIOLOGY** 1Q W 2 (3-4). Prereq 161 or 200 or 303. Microbiology of foods with emphasis on preparation, preservation and spoilage of foods.

12. **FOOD MICROBIOLOGY LABORATORY** 1Q W 2 (6-4). Prereq 290 or concurrent registration. Techniques for the investigation of microorganisms in foods.

### 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 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, capacity, interest, promise of development, and, in scholarship in general, than it is in the precise content of the program with 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 catalog, 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 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 unless the regular music faculty judges that students who are wind instrumentalists may remain in their applied field. Students majoring in Music Education must register with the music faculty each quarter. Voice majors must register for chorus or choral union every quarter. Students registered in any group must participate in that group for the remainder of the academic year. Piano and organ majors must fulfill this requirement by the completion of Music 140 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 6 credits in Piano 100 or completion of Piano in Class 211.

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 half-hour 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 same quarter. Lessons missed by students or lessons falling on a legal holiday will not be made up.

RENTALS, PER QUARTER

Practice room without piano, one hour daily: $2.00
Additional hour daily: $1.00
Piano practice room, one hour daily: $1.00
Additional hour daily: $1.00
Organ and practice room, one hour daily: $5.00
Additional hour daily: $5.00
*Wind and string intruments: $4.00

*Rentals for instruction in school and orchestra must be paid in full for the entire school year. Other rentals must be paid for entire quarter. No refunds of rentals will be made.

(Above fees are subject to modification by action of the State Board of Education.)

A. CURRICULUM FOR BACHELOR OF MUSIC DEGREE WITH A MAJOR IN MUSIC EDUCATION

For students who sincerely feel the challenge and vital service opportunity in the teaching profession, and whose high school background includes experience in musical organizations, Montana State University offers three major courses, each leading to the degree of Bachelor of Music with a major in Music Education.

Students desiring of teaching and directing both vocal and instrumental music may enroll for the General Supervisor’s Course. Separate state certification of 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) | 1.1.1 |
| Music 104 (Organization) | 1.1.1 |
| Music 111-112-113 (Theory I) | 2.2.2 |
| Music 121, 122, 133 (Sight Singing, Keyboard, and Dictation) | 1.1.1 |
| Music 141, 115, 116 (Piano in Class) | 1.1.1 |
| Music 152, 125, 127, or 129 (Strings or Winds in Class) | 1.1.1 |
| Music 155, 128, 127 (Introduction to Music Literature) | 2.2.2 |
| English 161-162-163 (Freshman Composition) | 3.3.3 |
| Health & Physical Educ 100 | 1.1.1 |
| ROTC 101-102-103 (Men) | 2.0.2 |

SOPHOMORE YEAR

| Music 201, 202, 203 (Applied) | 1.1.1 |
| Music 105-107 (Organizations) | 1.1.1 |
| Music 241, 242, 243 (Theory II) | 2.2.2 |
| Music 237, 238, 239 (Sight Singing, Keyboard, and Dictation) | 2.2.2 |
| Music 215, 216, 217 (Piano in Class) | 1.1.1 |
| Music 117, 118, 119 (Vocal Class) | 1.1.1 |
| Music 231, 232, 233 (Conducting) | 3.3.3 |
| Electives (Non-Music) including Psych 110 | 3.3.5 |
| Health & Physical Educ 100 | 1.1.1 |
| ROTC 201-202-203 (Men) | 2.1.2 |

JUNIOR YEAR

| Music 301, 302, 303 (Applied) | 1.1.1 |
| Music 106-110 (Organizations) | 1.1.1 |
| Music 122, 123, 124, 125, 126, 127 (School Music) | 3.3.3 |
| Music 125, 126, 127, or 129 (Strings or Winds in Class) | 1.1.1 |
| Education 200, 205, 308 | 2.4.5 |
| Electives (Non-Music) | 3.0.6 |

SENIOR YEAR

| Music 401, 402, 403 (Applied) | 1.1.1 |
| Music 144-146, 147, 148, 149, 150, 151 (Organizations) | 1.1.1 |
| Music 434, 435, 436 (History of Music) | 3.23.3 |
| Music 229, 230, 231 (Orchestration) | 2.3.2 |
| Music Electives (upper division) | 0.3.3 |
| Education 405 (Student Teaching) | 10.0.0 |
| Electives (Non-Music) | 0.7.7 |

*Mus Ed majors taking piano as Sec Applied Major must complete Music 329, 331, 332, Piano Methods and Materials.

VOCAL MAJORS

Vocal majors in Music Education follow curriculum A with the following exceptions: Three credits only in Music 125, 126, 127 and 129. Music 233, 235, 239, 330 and 331 are not required, but vocal majors must substitute 6 additional credits in upper division music electives. An academic teaching minor is recommended.

INSTRUMENTAL MAJOR

Instrumental majors in Music Education follow Curriculum A with the following exceptions: Music 117, 118, 119, 232 and 324 are not required. Music or academic electives may be substituted.

B. CURRICULUM FOR BACHELOR OF MUSIC DEGREE WITH MAJORS IN APPLIED MUSIC, IN THEORY OR COMPOSITION.

An instrumentalist or vocalist may enroll for training leading to the degree of Bachelor of Music with a major in Applied Music (including emphasis on piano pedagogy), Theory or Composition. Enrollment may not be completed until the student has received the recommendation of a major professor or a committee of the music faculty.

MAJOR IN PIANO OR ORGAN

Students interested in piano pedagogy follow Curriculum B with the following exceptions: 1) at least six credits in Music 140 (Piano Ensemble) must be included. 2) a half recital, Music 445, 1 credit, will fulfill the senior recital requirement.

FRESHMAN YEAR

| Music 151-152-153 (Applied) | 4.4.4 |
| Music 106-110 (Organization) or Music 140 (Ensemble) | 1.1.1 |
| Music 111-112-113 (Theory I) | 2.2.2 |
| Music 151, 122, 123, 125, 126, 127 (Sight Singing, Keyboard, and Dictation) | 1.1.1 |
| Music 130, 136, 137 (Introduction to Music Literature) | 2.2.2 |
| Music 301, 302, 303 (Freshman Composition) | 3.3.3 |
| Health & Physical Educ 100 | 1.1.1 |
| ROTC 101-102-103 (Men) | 2.0.2 |

or

0.0.2

SOPHOMORE YEAR

| Music 251-252-253 (Applied) | 4.4.4 |
| Music 106-110 (Organization) or Music 140 (Ensemble) | 4.4.4 |
| Music 241-242-243 (Theory II) | 2.2.2 |
| Music 257, 258, 259 (Sight Singing, Keyboard, and Dictation) | 2.2.2 |
| Music 247, 248, 249 (Keyboard Harmony) | 1.1.1 |
| Psychology 110 and Electives (non-music) | 5.4.4 |
| Health & Physical Educ 100 | 1.1.1 |
| ROTC 201-202-203 (Men) | 2.1.2 |

or

2.2.0...
JUNIOR YEAR:
Music 351, 352, 353 (Applied) .................................... 4,4,4.
Music 200-101-140 (Organization) ........................... 1,1,1.
Music 201-222-223 (Conducting) ............................. 1,1,1.
Music electives (upper division) .............................. 3,3,3.
Electives (non-music) ........................................ 4,4,4.

SENIOR YEAR:
Music 451-452-453 (Applied) ................................ 1,1,1.
Music 106-110 or 140 (Organization) ....................... 1,1,1.
Music 445 (Senior Recital) .................................... 0,0,2.
Electives (non-music) .......................................... 7,7,7.

MAJOR IN VOICE
FRESHMAN YEAR:
Music 151, 152, 153 (Applied) ................................ 3,3,3.
Music 106-110 (Organization) ................................ 1,1,1.
Music 111-112-113 (Theory I) ................................. 1,1,1.
Music 114-115-116 (Piano in Class) ......................... 1,1,1.
Music 151, 152, 153 (Sight Singing, Keyboard, and Dictation) .................................................. 3,3,3.
English 101-102-103 (Freshman Composition) ............ 1,1,1.
Health & Physical Educ 100 .................................... 2,2,2.

MUSIC—67

SOLO MUSICIAN

MAJOR IN ORCHESTRAL INSTRUMENTS
FRESHMAN YEAR:
Music 151, 152, 153 (Applied) ................................ 3,3,3.
Music 106-110 (Organization) ................................ 1,1,1.
Music 111-112-113 (Theory I) ................................. 1,1,1.
Music 114-115-116 (Piano in Class) ......................... 1,1,1.
Music 151, 152, 153 (Sight Singing, Keyboard, and Dictation) .................................................. 3,3,3.
English 101-102-103 (Freshman Composition) ............ 1,1,1.
Health & Physical Educ 100 .................................... 2,2,2.

MAJOR IN COMPOSITION OR THEORY
FRESHMAN YEAR:
Music 100 ....................................................... 1,1,1.
Music 106-110 (Organization) ................................ 1,1,1.
Music 111-112-113 (Theory I) ................................. 1,1,1.
Music 151, 152, 153 (Sight Singing, Keyboard, and Dictation) .................................................. 3,3,3.
Music 150, 160, 161 (Composition I) ....................... 2,2,2.
Music 215, 216, 217 (Piano in Class) ....................... 3,3,3.
Psychology 110 and Electives (non-music) ................ 3,3,3.
Electives (upper division) .................................... 3,3,3.
Electives (non-music) .......................................... 4,4,4.

SOLO MUSICIAN

FRESHMAN YEAR:
Music 200-101-140 (Organization) ........................... 1,1,1.
Music 201-222-223 (Conducting) ............................. 1,1,1.
Music electives (upper division) .............................. 3,3,3.
Electives (non-music) .......................................... 4,4,4.

SENIOR YEAR:
Music 451-452-453 (Applied) ................................ 1,1,1.
Music 106-110 or 140 (Organization) ....................... 1,1,1.
Music 229, 230, 231 (16th Century Counterpoint) ....... 2,2,2.
Music 459, 460, 461 (Composition) ........................ 2,2,2.
Electives (non-music) .......................................... 7,7,7.

ADDITIONAL REQUIREMENTS: Students taking voice or instrument in Music 101-403 series, must take Music 100—Piano until a jury examination has been passed.

C. CURRICULUM FOR BACHELOR OF ARTS DEGREE WITH A MAJOR IN MUSIC

Students with a pre-college background in applied music may elect Curriculum C, a course designed to develop musicianship, to gain scholarly insight into the art of music, and to develop substantial background in the Arts and Sciences. This degree does not qualify a student for public school teaching in Montana but does provide a strong basis for further professional work in music performance and scholarship, and the possibility of teaching careers in colleges or in private institutions. Minimum credit requirements for this degree are: Music—57 cr., Arts and Sciences—50 cr. General (other than Health and Physical Education) 50 cr., Groups I, II, and III—36 credits. Maximum credits applicable toward this degree: Applied Music—12 cr., Ensemble Music—6 cr.

SOPHOMORE YEAR:
Music 101, 102, 103 (Applied) ................................ 1,1,1.
Music 106-110 .................................................. 1,1,1.
Music 111, 112, 113 (Theory I) ............................... 1,1,1.
Music 131, 132, 133 (Sight Singing, Keyboard, and Dictation) .................................................. 3,3,3.
Eng 101-102-103 (Freshman Composition) ............... 3,3,3.
English 101-102-103 (Freshman Composition) ............ 3,3,3.
English 101-102-103 (Freshman Composition) ............ 3,3,3.
Health & Physical Educ 100 .................................... 1,1,1.

JUNIOR YEAR:
Music 201, 202, 203 (Applied) ................................ 1,1,1.
Music 106-110 .................................................. 1,1,1.
Music 237, 238, 239 (Sight Singing, Keyboard, and Dictation) .................................................. 2,2,2.
Music 241, 242, 243 (Theory II) .............................. 2,2,2.
Music 215, 216, 217 (Piano in Class) ....................... 3,3,3.
Psychology 110 and Electives (non-music) ................ 3,3,3.
Health & Physical Educ 100 .................................... 2,2,2.

JUNIOR YEAR:
Music 201, 202, 203 (Applied) ................................ 1,1,1.
Music 106-110 .................................................. 1,1,1.
Music 237, 238, 239 (Sight Singing, Keyboard, and Dictation) .................................................. 2,2,2.
Music 241, 242, 243 (Theory II) .............................. 2,2,2.
Eng 101-102-103 (Freshman Composition) ............... 3,3,3.
General 151-152-153 (Humanities) ......................... 3,3,3.
Health & Physical Educ 100 .................................... 1,1,1.

SOPHOMORE YEAR:
Music 401, 402, 403 (Applied) ................................ 1,1,1.
Music 106-110 .................................................. 1,1,1.
Music electives (choice of History Literature or Counterpoint) 3,3,3.
Electives (non-music) .......................................... 4,4,4.

SPECIAL REQUIREMENTS FOR THE MASTER OF MUSIC DEGREE. Three programs are available which lead to this degree:

A. Major in Applied Music. In addition to the general requirements for admission under the Graduate School, the candidate must meet the following special requirements: A thesis placement test, a bachelor's degree in one field of applied music, or the demonstrated equivalent of an applied major. An audition or tape recital will be required of students with a B.M. from other institutions.
General requirements: 45 credits of graduate work, a minimum of 12 credits in applied music, a full solo recital; pass a final oral examination covering the fields of study prior to the recital; 3 credits selected from Group B: Band, Orchestra, Chorus (or equivalent); that keyboard students may, with faculty approval, offer credit in 140 for all the ensemble requirement.


Any music courses (graduate credit) may be offered to complete the required 45 credits of graduate work.

B. Major in composition. In addition to the general requirements for admission under the Graduate School, the candidate must meet the following special requirements: A bachelor's degree with a major in theory and composition or the demonstrated equivalent of such a major, a bandwidth, four semesters of composition, and both a keyboard background and composition skills. The candidate must complete 3 credits of 501-502-503 and 12 credits of 609, 6 of which must be in the field of composition. Composition only can be offered toward the degree.

A total of 7 graduate credits in non-music electives may be offered toward the degree.

C. Major in Music Education. In addition to the general requirements for admission under the Graduate School, the candidate must take a theory placement test and have an audition in his or her performance area for entrance into the music education program.

General requirements: 45 quarter credits of graduate work, minimum of 12 credits in composition and 6 credits in applied music, pass an oral examination covering the fields of study; 3 credits selected from Band, Orchestra, Chorus (or 146 summer only); and three copies of a professional paper consisting of a musical work of major proportions, written under assignment. A performance of the work shall be supervised by the candidate.


A total of 7 graduate credits in non-music electives may be offered toward the degree.

COURSES OF STUDY

Upon entrance into any applied music course the student will be given a placement examination and assigned to the course to which his ability, previous training and experience entitle him.

MUSIC 100—Secondary Applied Minor a/q 1-2 Prereq c/l.

Individual instruction in voice, piano, organ, string, wind, and percussion instruments. Various curricula provide for secondary study in applied music. Secondary study is designed to give the beginning student certain proficiency in order that he may use this application as a tool rather than as a medium for performance. A total of 12 credits is allowed in any one applied area.

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 1-2 Prereq audition and c/l. Individual instruction in voice, piano, organ, string, wind, and percussion instruments. The students in Curriculum A must have an applied study in an instrument other than their area of musico-music education. A student entering in Music 101 should show evidence of the equivalence of two year's prior study.


Applied Major a/q V 2-3 Prereq audition and c/l. Individual instruction in voice, piano, organ, string, wind, and percussion instruments. Students majoring in Applied Music (Curriculum B) must show talent for solo performance and evidence of the equivalent of four years' prior study. A senior recital must be given before graduation.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

105 SUMMER SESSION CHORUS 1Q Su V 1-2

106 UNIVERSITY CHOIR 3Q A W S 1

107 CHORAL UNION 3Q A W S 1

108 ORCHESTRA 3Q A W S 1

110 UNIVERSITY BAND 3Q A W S 1

Courses 106 through 110 are major music organizations. 3Q A W S Su Prereq c/l. Music majors take a minimum of 12 credits; non-music majors may take more.

111-112-113 THEORY I 3Q A W S 2 Prereq pass music place- ment examination. The art and science of music structure (emphasis on tonality and chord progression), intervals, chords, cadences, melodic writing, modulation, and rhythm.

114-115-116 PIANO IN CLASS 3Q A W S 1. All major and minor scales 2 octaves HS. All major and minor triads in all positions. Harmonization of simple tunes. V7 chords. Materials such as Oxford and Burrows Adult Beginners Books. Transposition, memorization, and sight-reading.


123-124-125 MUSIC EDUCATION IN THE ELEMENTARY SCHOOLS 2Q W S S 3 Prereq 114 or = or concurrent registration. (123) A philosophy of teaching music in the elementary schools. The emphasis placed on learning by doing. Singing, listening, rhythm, instrumental, creative, and integration; twenty-five songs memorized; use of the pitch pipe, autoharp and chording on piano; classroom conducting; basic rudiments of music and keyboard study. (124) A second semester emphasis. (125) dealing more specifically with topics presented generally during the first quarter. Other topics included: beginning part singing; dramatizations; integrated units with social studies, art, and literature; use of phonograph; instruments of the orchestra by sight and sound; additional material in music reading; music books for the elementary school library. Not open to music majors.

126-127-128 STRING INSTRUMENTS IN CLASS 3Q A W S 1. Group instruction for beginning students on violin, viola, cello, and double bass. An introduction to the elements of string performance.

129 WIND AND PERCUSSION INSTRUMENTS IN CLASS 3Q A W S 1. A study of the elements of woodwind and percussion performance.

130-131-132 SIGHT-SINGING, KEYBOARD, AND DICTATION 3Q A W S 2. Prereq 114 as well as music placement. The application of materials studied in Theory I to the various areas of ear-training (sight-singing, melodic and harmonic dictation).

134 INTRODUCTION TO CONCERT MUSIC 1Q A W S 2. A study of the music in our present-day culture; historical analysis of the basic art of music composition.

135-136-137 INTRODUCTION TO MUSIC LITERATURE 3Q A W S 1 (350) Course work in music history. The place of music in history with emphasis on its relation to social change and to the history of other art forms. Comparative survey of masterpieces of music from the Renaissance through the Baroque era. Study of recordings. Concert attendance required; (136) masterpieces of music of the Classic-Romantic era. Study of recordings. Concert attendance required; (137) masterpieces of music of the 19th century. Study of recordings. Concert attendance required. For music majors only.

140 ENSEMBLE GROUPS 1Q A W S 1. Any small group of two or more players or singers may have a course outlined by the instructor. The emphasis is on sight singing and acquaintance with music literature; accompanying. Students may register for more than one ensemble group in any one quarter.

150-151-152 COMPOSITION 3Q A W S 2 Prereq c/l. An introduction to the basic art of music composition.

215-216-217 INTERMEDIATE PIANO IN CLASS 3Q A W S 1 Prereq 3 credits in either Piano I, Music 114-115-116, or placement test. All major and minor scales 2 octaves HT. Further development of harmonization, transposition, memorization, and sight-reading. Materials such as Felton Progressing Studies and Bartok Mikrokosmos Books I and II.

231-232-233 CONDUCTING 3Q A W S 2. Prereq 10 credits in music including Music 111-112. (231) Fundamentals of conducting. Prereq for 232 or 233. (232) Choral conducting. (233) Instrumental conducting. Practical conducting experience. Students will be provided through individual conducting projects, the class being used as a clinic chorus and band.


249 KEYBOARD HARMONY 3Q A W S 1 Prereq 243 or concurrent registration, and placement in Piano or Organ 151. Practical application of theory principles to the keyboard. Exercises in modulations, transposition, and development of extemporaneous playing.


319 PIANO FOR THE CLASSROOM TEACHER 1Q Su 2. Presenting simple material at a basic level of skill, toward a wider utilization of the piano in classroom and school situations.

323-324-325 SCHOOL MUSIC 3Q A W S Su (324-325) Prereq 231 or concurrent registration. Enter any quarter. Music Education majors must register one quarter of 323-324-325 as education in order to complete 24 credits in education for certification. (323) Elementary School Music. Materials and procedures. Creative musical experiences of teaching singing, rhythms, listening, and playing simple instruments. (324) School Choral Program. Materials and techniques for junior high school. Inter-relation of general and specialized classes and their role in the total school program. (325) School Instrumental Program. Materials and techniques for instrumental instruction at all levels and for high school theory classes.

339 MUSIC AND THE ALLIED ARTS 1Q Su 1. Discussion and illustration of masterworks of music in the 17th through the 20th centuries with emphasis upon larger forms and use of original ideas in tonal color. (20x41) to r y a n d  p h i l o s o p h y  o f m u s i c  e d u c a tio n  in  A m e r i c a  a n d  th e i r  r e l a ­ w ith  e m p h a s is  u p o n  la r g e  fo r m s  a n d  u s e  o f o rig in a l id e a s  in  to n e 

PHARMACY—69

523 SCHOOL MUSIC ADMINISTRATION 1Q A Su 3. School systems, plans for organizing and administering to the music program in the elementary, junior and senior high school. For students with a primary purpose of preparation for administrative or supervisory work in music education.

538 PEDAGOGY OF THEORY 1Q W Su 3. The teaching of theory including techniques, procedures and sequences of materials and a comparison of student learning and methods of instruction of teaching techniques, and organization of the teaching of theory in secondary schools and in colleges.

562 SEMINAR a/q V 1-5 R-15. Investigation of research in fields of individual interest.

569 COMPOSITION a/q V R-12.

601-602-603 APPLIED TECHNICS a/q V 1-4. Individual instruction in voice, piano, organ, string or wind instruments. Students desiring further study of minor applied fields may elect 1-2 credits.

539 MUSIC AND THE ALLIED ARTS 1Q Su 1. Discussion and illustration of masterworks of music in the 17th through the 20th centuries with emphasis upon larger forms and use of original ideas in tonal color.

540 HISTORY OF MUSIC 3Q A W S 3 Prereq 137. Enter any quarter. The history of music in Western Civilization from its origin to modern times and its relationship to general cultural development.

445 SENIOR RECITAL 1Q V 1-2 Prereq concurrent registration in Music 451, 452 or 453. FOR UNDERGRADUATES AND GRADUATES

308 WORKSHOP IN MUSIC EDUCATION 1Q Su V 1-3 Prereq junior standing in music or teaching experience. Special workshops and clinics in elementary and secondary public school teaching problems.

311-312-313 THEORY III 3Q A W S 2 Prereq 243. Chromatic harmony; altered chords, foreign modulation; analysis and writing in Classic and Romantic styles, both instrumental and vocal.


334 INSTRUMENTAL REPAIR 1Q Su 3. The care and maintenance of wind, strings, basso and percussion instruments with special attention given to repair projects covering those problems which most often confront the high school instrumental teacher.


396-397-398 SIXTEENTH CENTURY COUNTERPOINT 3Q A W S 2 Prereq 243 or concurrent registration. Writing and analysis, Renaissance vocal and instrumental style.


423 MUSIC OF THE ROMANTIC PERIOD 1Q S 3 Prereq 137 and 243. Detailed analysis and comparison of selected instrumental, vocal and keyboard compositions of the Nineteenth Century.

424 MUSIC OF THE TWENTIETH CENTURY 1Q S 3 Prereq 137 and 243. Detailed analysis and comparison of selected instrumental, vocal and keyboard compositions of the Twentieth Century.

431 ADVANCED CONDUCTING 1Q A W S Su 3 R-6 Prereq 232 (Choral majors), 233 (others), and c/f. A continuation of 231-232-233. Class and for individual study of the art of conducting with emphasis on applied work with university performing groups.

450-460-461 COMPOSITION 3Q A W S Su 2 Prereq 391. A continuation of composition with writing in the larger forms.


FOR GRADUATES

501-502-503 APPLIED TECHNICS a/q V 1-4 Individual instruction in voice, piano, organ, string or wind instruments. Students desiring further study of minor applied fields may elect 1-2 credits.

521 MUSIC EDUCATION IN AMERICA 1Q W Su 3. The history and philosophy of music education in America and their relation to general educational thought.

579 THESIS a/q V R-15.

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.

Five years are required for the degree of Bachelor of Science in Pharmacy. The degree of Master of Science in Pharmacy is also offered. Science graduates are licensed by the states in accordance with 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 education program, the candidate for licensure 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 opportunities exist as representatives for pharmaceutical manufacturers, in government service, in manufacturing pharmacy, and in pharmaceutical journalism. Those with advanced degrees are in demand in research positions and professional positions 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 two years are devoted to the preparation in the sciences (32 credits) listed below and may be taken in any recognized college or university. The professional curriculum of the School of Pharmacy consists of the final year and must be taken in residence at Montana State University, although students transferring from other accredited schools of pharmacy may be admitted on an advanced standing determined on the basis of credits presented.

Upper class students may choose approved elective courses designed to prepare them specifically for either retail 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 trigonometry. It is also recommended that the high school preparation include advanced algebra, trigonometry, chemistry, physics, and biology. If the student may pursue advanced studies in pharmacy, a foreign language.

REQUIREMENTS FOR ADMISSION TO THE PROFESSIONAL CURRICULUM. 1. The general requirements for admission to Montana State University are listed elsewhere in the catalog of the University.

2. At least two years as prescribed in the pre-pharmacy curriculum (may be transferred from accredited colleges):
   - First year: Chemistry 121-122-123, English 101-102-103, Health and Physical Education 100 (3 credits, 2 quarters), Mathematics 100 and 113, ROTC 101-102-103, Zoology 101 and electives. (Students satisfactorily passing the mathematics placement examination will be exempted from Mathematics 113 in which case they will substitute a Group II or Group III elective.)
   - Second year: Botany 130 and 131, Chemistry 261-262-263, Economics 201-202, Health and Physical Education 100 (3 credits, 3 quarters), Physics 111-112, ROTC 201-202-203, Zoology 201, and Group II or Group III electives.

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 satisfactory grades for the college or university work taken and completed at the time he makes application for admission to the first professional 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 grade point deficiency score of more than 10. If he has a greater deficiency, he will not be granted senior standing but will be required to retake such courses 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 senior standing and may become a candidate for a degree upon the satisfactory completion of the senior year.

Candidates for the degree of Bachelor of Science in Pharmacy must:
1. Meet the general University requirements for graduation.
2. Complete not less than five full academic years of training, including both pre-pharmacy instruction and a minimum of three years of professional instruction.
3. Complete not less than 225 credits of course work, plus six credits in required Health and Physical Education.

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 21 years of age, and shall have completed or be a graduate of an accredited school of pharmacy. Further, such an applicant shall have completed a cumulative grade point average of 2.0 or higher at the end of the academic year in which the student is eligible to graduate.

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 200-204; Business Administration 291; Chemistry 261-262-263; Pharmacy 296 or Elective, 297 or Elective, 324-325, Zoology 340-341; electives.
Second year: Business Administration 391; Chemistry 384; Microbiology 411; Pharmacy 414-415-416, 441, 451, 461, 462, 465, 475, and electives.
Third year: Pharmacy 503, 504, 505-506, 516, 517-518-519, 549-550, 541-542, 577; and electives.

FOR UNDERGRADUATES
For explanation see Index under “Symbols”

206 ORIENTATION TO PHARMACY 1Q A 2 (3-0). Career opportunities, literature, history and terminology, library orientation.

220 PHARMACEUTICAL CALCULATIONS 1Q W 3 (3-0). Metabolism, pharmacologic arithmetic, mathematical Latin, and the use of the British Pharmacopoeia for determination of pharmaceutical compositions.

324-325 PHARMACOGNOZY 2Q W 3 (3-0). S 4 (3-2) Prereq Bot 130 and Chem 263 or =. The plant and animal products used in pharmacy and medicine, particularly if the student is majoring in botany or chemistry.

414-415-416 ORGANIC MEDICINAL PRODUCTS 3Q A W S 3 (3-0) Prereq Chem 263. Organic substances used medically with emphasis on the correlation of chemical structure with therapeutic activity.

418 ORGANIC MEDICINAL PRODUCTS 1Q W 2 (0-6 to 9) R= Prereq 414. Synthesis, identity and purity tests, of organic medicinals.

441 INTRODUCTION TO PHARMACOLOGY 1Q S 3 (6-0) Prereq Zoology 341. Principles of drug administration and the quantitative evaluation of drug activity.

452 DRUG ANALYSIS 1Q A 4 (2-6) Prereq Chem 245. Special and instrumental methods used in the analysis of pharmaceutical preparations.

461 PHARMACEUTICAL CHEMISTRY 1Q A 3 (3-0) Prereq 220 and Chem 263 or =. An introduction to the elementary physical chemical principles as applied to pharmacy and pharmaceuticals.

463-6 OPERATIVE PHARMACY 3Q W S 5 (3-0) Prereq 220 and Pharm 341. Fundamentals and the various classes of pharmaceutical preparations.

466 MEDICINAL PLANTS 1Q On demand 2 (0-6) Prereq 325. The collection, identification, drying, grinding, milling of crude drugs.

467 IDENTIFICATION OF MEDICINAL PLANTS 1q a/q On demand 3 (0-6) Prereq 466. The herbarium study of medicinal plants.

468 DRUG MICROSCOPE 1Q On demand 2 (0-6) Prereq junior standing in pharmacy and 1/1. Microscopic and micro-chemical analysis of drugs, foods and spices. The detection of adulterants and impurities.

475 TOXICOLOGY 1Q W 3 (2-4). Emergency procedures for the treatment of poisonous, characteristics of the more common poisons, and the recognition and identification of poisons.

503-504 BIOLOGICAL MEDICINAL PRODUCTS 2Q W S 3 (3-0) Prereq Microbiology 204. Biologies, antibiotics, vitamins, hormones, and antitoxins.

505-506 DISPENSING 2Q W 3 (2-6) Prereq 463. The fundamental principles of prescription compounding by means of a detailed study of the common dosage forms and special forms of medication.

517-518 PHARMACOLOGY 1Q A 3 (3-0) Prereq senior standing in pharmacy. State and federal laws pertaining to the practice of pharmacy.

519 PHARMACEUTICAL PRACTICE 3Q A W S 1 (0-6) Prereq junior 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 PHARMACOLOGY 3Q A W S 4 (3-2) Prereq senior standing in pharmacy, and Zoology 341 or =. The pharmacodynamics of drugs and its application to therapeutics.

550 ANIMAL HEALTH PRODUCTS AND PESTICIDES 1Q S 3 (0-6) Prereq 540. Pharmaceuticals used in the treatment of diseases of animals, pesticides, and pest control.

577 PHARMACEUTICAL ADMINISTRATION 1Q S 3 (3-0) Prereq senior standing in pharmacy. The management of retail pharmacy with emphasis on the professional problems of the pharmacy.

FOR UNDERGRADUATES AND GRADUATES

570 COSMETICS 1Q On demand 3 (1-6) Prereq 463. The theory and technic of cosmetic formulation.

585 ADVANCED DRUG ANALYSIS 1Q On demand 3 (1-6) Prereq 463. More involved methods of analysis as applied to pharmaceuticals.

592-503 HOSPITAL PRACTICE 1-2Q On demand 1-3 (6-0/2-cr) Prereq 540. Participation in the routine of a hospital pharmacy.

598 SEMINAR a/q 1 (1-0) R-6 Prereq senior standing in pharmacy.

599 SPECIAL PROBLEMS IN PHARMACY a/q V 2-5 (6-0/3-cr) Prereq 540 or =. Research studies by conference, library and laboratory research in pharmacy, pharmaceutical chemistry, pharmacognosy, or pharmacology.

FOR GRADUATES

602 ADVANCED PHARMACOCHEMICAL TECHNICS 1Q a/q 3 (0-6) Prereq 634 and Bot 334 and 335. Techniques used in investigative pharmacognosy.

656-606-607 CHEMISTRY OF NATURAL PRODUCTS 3Q a/q 3 (2-6) Prereq 416, 418, 420. Alkaloids including methods of isolation, degradation studies, proof of structure, and synthesis, with emphasis on the pharmacetical compounds. (601) Simple oils, terpenes and steroids, including their occurrence, methods of isolation and chemistry. (602) Glycosides and related compounds, including methods of isolation, proof of structure, synthesis and chemistry.

668-669-610 ADVANCED ORGANIC MEDICAL PRODUCTS 3Q A W S 3 (3-0) Prereq 416, Chem 494. Given alternate years. The organic medicinals by chemical synthesis, proof of structure, synthesis-structure-activity relationships and chemistry.

611 ADVANCED ORGANIC MEDICAL PRODUCTS LABORATORY 1Q A 2 (3-0) Prereq 416, 420. Preparation, isolation and purification of organic medicinals by advanced techniques.

619 ADVANCED PHARMACOLOGY 1-3Q a/q V 3-5 (6-9 to 15) Prereq 542 or =. The more involved actions of drugs upon cells and organs.

630 ADVANCED PHARMACY 1-3Q a/q V 3-5 (6-9 to 15) Prereq 566 or =. The more complex problems involved in formulation and preparation of pharmaceulicals.

693 THESIS a/q V R-15.
PHILOSOPHY

is the search for wisdom by carefully reasoned reflection. Philosophical enquiry is concerned with such questions as:

How can we distinguish reality from appearance? Is the

world to be identified with a quantity of material objects, as a framework of men-

tal experiences, or as an open field for action? By what methods can man attain

knowledge, and what kinds of knowledge? Are values derived from personal

feelings or from standards which may be impersonal, verifiable, unchang-

ing? Are there significant relations among phases of experience reflected in science,

art, religion, morality and politics?

Courses in philosophy acquaint the

students with the views of great philosophers, past and present. Discussion and written work are largely con-

cerned with evaluating the reasoning by which each thinker develops his point of view.

The Bachelor of Arts and Master of Arts degrees are offered.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DE-

GREE IN PHILOSOPHY. In addition to the general requirements for graduation listed earlier in the catalog, the following special requirements must be completed for the Bachelor of Arts degree with a major in Philosophy: a minimum of 50 credits, including Philosophy 110, 201, 202, 203, 210 and 322, and credit in courses num-

bered 400 or above. The requirement of 210 may be waived by permission of the department. Normally students are expected to complete Philosophy 110, 201, 202 and 203 by the end of their sopho-

more year. The foreign language requirement listed earlier in the catalog must be satisfied.

PHILOSOPHY-LAW COMBINATION PROGRAM. In addition

to the general requirements for graduation listed earlier in the catalog, 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. Stud-

ents must take Philosophy 110, 120, 201, 202, 320, and either 320 or 321, and should take as many as possible of the following courses: Philosophy 330, 350, 354, 368, 369 and 422.

FOR UNDERGRADUATES

For explanation see Index under "Symbols".

110 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 1Q A W S 2 (181) Theory of Knowledge. (102) Metaphysics. (103) Moral Philos-

ophy. Credit not allowed for both this course and 102.

110 LOGIC 1Q A S 5. The valid forms of reasoning, the methods of science, and the detection of fallacies.

120 ETHICS 1Q A S 5. The nature of moral values, standards of moral judgment, moral problems in personal life and in social relations.

121-122 ETHICS 2Q A W 3. The nature of moral values, standards of moral judgment, moral problems in personal life and in social relations. Credit not allowed for this course and 120.

201 HISTORY OF ANCIENT PHILOSOPHY 1Q A 5.

202 HISTORY OF MEDIEVAL AND RENAISSANCE PHILOS-

OPHY 1 Q W 5 Prereq 201.

203 HISTORY OF MODERN PHILOSOPHY 1Q S 5 Prereq 202.

210 SYMBOLIC LOGIC 1Q W 5. Theory and practice in the

kind of logic also known as formal or mathematical logic. Applica-

tions in the foundations of mathematics and in theory of scientific investigation.

FOR UNDERGRADUATES AND GRADUATES

301-302-303 GREAT PHILOSOPHERS 5Q A W S 1. (Given in the

summer for 3 cr or 304). Enter any quarter. (301) Greek, Roman and early Christian thinkers. (302) Late medieval, Renaissance, and some modern thinkers. (303) Recent and contemporary thinkers. Not open to Philosophy majors for graduate credit.

320 MODERN ETHICS 1Q W 5 Prereq 120. Recent theories on the

nature of moral concepts; these will include naturalism, intuitionism, emotivism, and existentialism.

321 SOCIAL ETHICS 1Q S Su 3 o/y Prereq 120. Implications of different social systems with respect to rights and responsibilities.

322 PHILOSOPHY OF LAW 1Q A 3 Prereq 5 credits in Phi-

losophy. Various concepts of law in their relation to individual freedom and to social order; philosophical justification of different forms of authority.

330 PHILOSOPHY IN THE TWENTIETH CENTURY 1Q A 5

Prereq 10 credits in Philosophy.

340 AESTHETICS 1Q S 5 Prereq 3 credits in Philosophy. The

nature of aesthetic experience, of the standards of art criticism, and of the kinds of knowledge communicated by art. Readings from philosophers, artists and art critics.

341 PHILOSOPHY IN LITERATURE 1Q A W S 3 Prereq 10 credits in literature or Philosophy or Philosophical Modern. Selection of leading ideas in selected masterpieces of literature, both classical and modern.

350 THEORY OF KNOWLEDGE 1Q S 3 e/y Prereq 10 credits in Philosophy. Foundations of belief and reliable knowledge; the

claims of rationalism, empiricism, pragmatism, mysticism, authori-

tarianism, and skepticism.

351 METAPHYSICS 1Q W 3 Prereq 10 credits in Philosophy. Theories of reality including study of such fundamental concepts as being, form, substance, causation, universal, particular, and process.

352 PHILOSOPHY OF LANGUAGE 1Q S 2 e/y Prereq 5 credits in Philosophy and c/l. Recent investigations into the structure of ordinary and ideal languages as systems of signs and resulting conclusions for Philosophy.

353 CONTEMPORARY PHILOSOPHIES OF SCIENCE 1Q A 3 e/y Prereq 10 credits in Philosophy. Philosophical interpretation of religious experience, belief and practice.

355 ORIENTAL THOUGHT 1Q W 3 o/y Prereq 5 credits in Philosophy and c/l. A study of philosophical themes in some Hindu, Buddhist, and Taoist literature.

360 PLATO 1Q W 3 e/y Prereq 201; or 10 credits in Philosophy and c/l. Reading and interpretation of selected works.

361 ARISTOTLE 1Q S 3 e/y Prereq 201; or 10 credits in Phi-

losophy and c/l. Reading and interpretation of selected works.

362 DESCARTES, SPINOZA, LEIBNIZ 1Q A S 5 e/y Prereq 203; or 10 credits in Philosophy and c/l. The development of Cartesian Rationalism.

366 LOCKE, BERKELEY, HUME 1Q W 5 o/y Prereq 202; or 10 credits in Philosophy and c/l. The development of British Empiricism.

367 KANT 1Q S 5 o/y Prereq 203; or 10 credits in Philosophy and c/l. Reading and interpretation of selected works.

368 NINETEENTH CENTURY DIALECTICAL PHILOSOPHY 1Q W 3 e/y Prereq 203; or 10 credits in Philosophy and c/l. Dialectical idealism (Hegel) and dialectical materialism (Marx).

369 PHILOSOPHICAL LIBERALISM 1Q A 3 o/y Prereq 5 credits in Philosophy. Development of the chief concepts of liberalism, such as liberty, civil rights, and social justice.

370 IDEALISM 1Q S 3 e/y Prereq 10 credits in Philosophy. Recent British and American idealist philosophers.

371 REALISM 1Q W 5 o/y Prereq 10 credits in Philosophy. Twentieth century realist philosophers.

372 PRAGMATISM 1Q S 3 e/y Prereq 5 credits in Philosophy.

373 EXISTENTIALISM 1Q W 3 Prereq 10 credits in Philosophy and c/l. Selected readings from the works of both philosophical and literary, of prominent existentialist thinkers.

390 PROBLEMS IN PHILOSOPHY 3Q a/q V R-9 Prereq 15

credits in Philosophy and c/l.

402 SEMINAR: THEORY OF VALUES 1Q S 3 Prereq 15

credits in Philosophy and c/l.

422 SEMINAR: PHILOSOPHICAL PRESUPPOSITIONS OF

POLITICAL INSTITUTIONS 1Q W 3 e/y Prereq 222 or Political Science 351.

423 SEMINAR: METAPHYSICS 1Q S 3 o/y Prereq 15 credits in Philosophy and c/l.

424 SEMINAR: DEFINITION AND TRUTH 1Q W 3 o/y Prereq 15 credits in Philosophy and c/l.

425 SEMINAR: PHILOSOPHY OF SCIENCE 1Q W 3 o/y Prereq 15 credits in Philosophy and c/l.

426 SEMINAR: MYSTICISM AND INTUITIONISM 1Q S 3 e/y Prereq 15 credits in Philosophy and c/l.

429 SEMINAR a/q V R-9 Prereq 15 credits in Philosophy and c/l. Topics announced in schedule of classes.

FOR GRADUATES

500 RESEARCH a/q V R-15. Work on selected problems under

direction.

600 THESIS a/q V R-15.
PHYSICAL SCIENCES

are those sciences which concern themselves primarily with the inanimate aspects of man’s environment—the fields of Astronomy, Chemistry, Geology, Mathematics, and Physics.

Four years are required for the degree of Bachelor of Arts. During the first two years the student has the opportunity to study in all five fields. In the junior and senior years the student takes advanced work in the area of his choice. Since more advanced mathematics is necessary for adequate understanding of modern physics, students who choose that field must complete calculus.

This program enables the student to gain broad insight into these related areas of the physical sciences as well as to do some intensive work in one or more of them.

Students completing this program are prepared for beginning positions in industry or for work toward more advanced degrees. Those electing to teach may qualify to do so by taking the required courses in education and completing courses to meet requirements in a field taught in high schools in addition to the area chosen for intensive preparation.

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 catalog, fifty-five credits in physics must be earned for the Bachelor of Arts degree with a major in physics. In preparation for advanced courses, a student should take Physics 221-222-223 in the sophomore year. Required courses offered in other departments: Mathematics 116, 119, 118, 231, 252, 253; Chemistry 121-122-123. The foreign language requirement listed earlier in the catalog must be satisfied.

FOR UNDERGRADUATES

For explanation see Index under “Symbols”

111-112-113 GENERAL PHYSICS 3Q A W S 5 (5-3) Prereq for 111: Math 115. 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 for both 111-112-113 and 221-222-223.

121-122 RADIO ELECTRONICS 2Q A W 5 (5-0) Prereq 112. Vacuum tubes, radio circuits, high frequency oscillation, electronic measurements. Credit not allowed toward a physics major.

221-222-223 GENERAL PHYSICS 3Q A W S 5 (6-4) Prereq for 221: Math 118. 221 is prereq for 222 and 223, but 222 is not prereq to 223. This course satisfies medical and technical school requirements in general physics. (222) Heat, electricity, and magnetism. (223) Sound, light, and atomic physics.

231 WEATHER 1Q W 2 Prereq 221-222-223. Elements of meteorological phenomena including observational quantities, air mass relations and application to air transportation.

251-252-253 LABORATORY ARTS 3Q A W S 1 (0-3). Open to upper division science majors who have completed 223. Enter any quarter. Elements of glass blowing, machine shop practice, and electronic construction techniques.

271 VECTOR ANALYSIS 1Q S 3 (3-0) Prereq 222 and Math 252.

FOR UNDERGRADUATES AND GRADUATES

314-315-316 ELECTRICITY 3Q A W S 3 (3-0), S 4 (3-3) Prereq 271.


346-347-348 HEAT, THERMODYNAMICS, STATISTICAL MECHANICS 3Q A W S 5 (3-0) Prereq 223 and Math 253.

352-353 ATOMIC PHYSICS 2Q A W S 3 (3-0) Prereq 223 and Math 253.

354 NUCLEAR PHYSICS 1Q S 3 (3-0) Prereq 353.

431 SELECTED TOPICS a/q V 1-5 R-10 Prereq c/l and 15 credits in Physics.

471-472 MECHANICS 2Q A W S 3 (3-0) Prereq 271 and Math 253.

473 QUANTUM MECHANICS 1Q S 3 (3-0) Prereq 472.

480 PHYSICS SEMINAR 1Q S 1 (1-0). A library and discussion course required of Physics majors.

FOR GRADUATES

501 RESEARCH Given subject to demand. V 2-10 B-15 Prereq c/l.

512-513-514 ADVANCED EXPERIMENTAL PHYSICS 3Q A W S 2 (0-6). Given subject to demand.

552 RADIATION AND ATOMIC STRUCTURE 1Q 5 (5-0) Prereq 353. Given subject to demand.

554-555 QUANTUM MECHANICS 2Q W S 5 (5-0) Prereq 353 and 473.

699 THESIS a/q V R-15.

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, biology, 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.

Requirements in the Political Science department are designed to aid students in attaining the following objectives:

1. To assist all students in securing a broad liberal education and to equip them with the foundations for effective discharge of the duties of American citizenship;
2. To provide undergraduate preparation for those students who wish to pursue the study of Political Science at the graduate level with the ultimate goal of 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 catalog, the following special requirements must be met by the student in order to be awarded the degree with a major in Political Science: A minimum of 45 credits in Political Science is required with 30 credits from courses numbered over 200 and including Political Science 491. A student may offer a combination major in Political Science and History with a minimum of 60 credits selected from the two disciplines of which at least 20 credits must be in Political Science and 20 credits in History. A minimum of 30 credits must be selected from courses numbered over 200 including either Political Science 491 or History 491 or 492. This is in addition to the minimum of 60 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 Politics, International Relations, Public Administration, Public Law, and Political Theory. Each of these areas must be represented in the major in Political Science and 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 27 credits must be in each discipline. Required courses are: Political Science 491, Economics 365, 384, 385, 381, 382, and in Journalism 399 in partial fulfillment of the major requisites for a degree.

With permission of the Chairman of the Department, majors may offer credit earned in Economics 365, 384, 385, 381, 382, and in Journalism 399 in partial fulfillment of the major requisites for a degree.

In the final year in the Department, each major must pass a senior comprehensive examination.

With permission of the Chairman of the Department, majors may offer credit earned in Economics 365, 384, 385, 381, 382, and in Journalism 399 in partial fulfillment of the major requisites for a degree.

For explanation see Index under “Symbols”

101. INTRODUCTION TO GOVERNMENT IQ S 4. Comparative study of fundamental political institutions of modern governments, including constitutions, political parties, legislatures, executive and legislative branches, and courts.

202-203 AMERICAN GOVERNMENT 2Q A W S 4. (202) The underlying constitutional principles of the national government, the democratic political processes, including public opinion, interest groups, political parties, and elections; (203) the structure of the national government, Congress, the presidency, and the courts. The functions of the national government, including finance, business, labor, agriculture, conservation, defense, and foreign policy. Selected problems of national government will also receive substantial treatment.

231 INTERNATIONAL RELATIONS IQ S 4, Su 3. A general introduction to the nation-state system: factors of national power and policy, forces inducing tension, legal and institutional devices governing in conflict.

241 POLITICAL PARTIES AND ELECTIONS 1Q A S 3 Pre-requisite: 202-203. The organization and work of American political parties; the conduct and control of nominations and elections; parties and political democracy.

FOR UNDERGRADUATES


331 TOTALITARIAN GOVERNMENTS IQ S 3 Pre-requisite: 101. Totalitarian states with emphasis on the Soviet Union.

332-333 INTERNATIONAL PUBLIC LAW 2Q A W S 3 Pre-requisites: 8 cr in the Department. The law of nations in relation to peace, war, and collective security.

341 PRESSURE GROUP POLITICS IQ W S 3 Pre-requisite: 202-203. The role of pressure groups in American democracy; their interaction of interests with public opinion, political parties, legislatures, executives, administration, and the courts.

351-355 THE DEVELOPMENT OF POLITICAL THOUGHT 2Q A W S 3 Pre-requisites: 202-203. (351) Western political thought from ancient origins to the early modern period. (352) Western political thought from its early modern roots to the twentieth century.

355 AMERICAN POLITICAL THOUGHT IQ S 4 Pre-requisites: 101 or 203. American political thought, both systematic and popular from colonial origins to the present.

356-357 PUBLIC ADMINISTRATION 2Q A W S 3 Pre-requisites: 202-203. The process of administration, including personnel management, including finance and personnel. (356) Problems and techniques of public administration and their relation to the public interest. (357) Problems and techniques of public administration and their relation to the public interest.

358-359 GOVERNMENT REGULATION OF BUSINESS 2Q A S 3 Pre-requisite: 202-203. The theories of government regulation; regulation in practice by legislation, by commission, and by judicial decision; the government’s role in the economy.

371-372 THE AMERICAN CONSTITUTIONAL SYSTEM 2Q W S 3 Pre-requisite: 202-203. The constitution of the United States in the jurisprudence of the Supreme Court.

375 PRINCIPLES OF ADMINISTRATIVE LAW 1Q W S 3 Pre-requisite: 357. Principles of administrative law in relation to the Constitution, the administrative agencies, the courts, and the executive branch. (375) Problems and techniques of public administration and their relation to the public interest. (376) Problems and techniques of public administration and their relation to the public interest.

381 STATE GOVERNMENT 1Q A 3 Pre-requisite: 202. Structure, function, and operations of state governments; relation of states to other units of local government; administrative organization and reorganization including constitutional reforms. Special attention to Montana.

383 MUNICIPAL GOVERNMENT 1Q S 3 Pre-requisite: 202. Legal basis of municipal government; home rule; council-manager rule; commission, and council-manager plans; municipal services; problems of modern cities and metropolitan areas.


391 PROBLEMS IN POLITICAL SCIENCE 3Q A W W S 3 Pre-requisites: 202-203. R-9 Pre-requisite: 202-203. Research in fields selected according to the needs and objectives of the individual student.
395 SPECIAL STUDIES IN POLITICAL SCIENCE 3Q A W S Su V 1-2 R-4 Prereq 203 or 101 or 251, and C/L. Selected aspects of politics, government or international affairs. Offered by different instructors under various titles.

396 AMERICAN POLITICAL PROBLEMS 1Q A 4, Su 3 Prereq 203 or History 251-252. Present day problems such as governmental reorganization, taxation, and budget, states rights, and powers of Congress and the Chief Executive.

397 PRESENT WORLD PROBLEMS 1 Q S Su 3 Prereq 12 cr in the Department. Selected problems in recent and contemporary international affairs.

491 METHODS AND MATERIALS 1Q S Su 3. Open to department by petition only. Methods of investigation, evaluation and synthesis in Political Science with a survey of the technical literature on the subject.

FOR GRADUATES

395 SEMINAR IN POLITICAL SCIENCE 1Q A W S Su V 20-10 Prereq 30 cr in the Department and 491 or History 491. Special problems in political science.

699 THESIS a/q V R-15.

PRE-MEDICAL SCIENCES

are designed for students who wish to prepare for entry into medical, dental, pre-veterinary medicine or nursing schools. Medical schools require three years of such training and in most cases prefer four years. The four-year curriculum offers the degree of Bachelor of Arts with a major in pre-medical sciences which is described below. However, pre-medical students may take their degrees in any field so long as they are careful to include the required pre-medical courses. These requisites have been standardized by the medical profession and its governing or licensing boards. Primarily they require basic sciences (Chemistry, Mathematics, Physics, and Zoology), Foreign Language, Literature, Psychology, and Social Studies. Superior scholarship is of equal importance since medical and dental schools have more applicants than they can accept for admission.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, the student needs at least three years of high school mathematics. 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 a high level of competence and has a relatively well-balanced personality. Since not all applicants for entrance to 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 adviser during the freshman year, and consult with both the pre-medical sciences adviser and the adviser 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 catalog; Chemistry through Organic Chemistry and Quantitative Analysis; one year of college mathematics; one year of college physics; Zoology through comparative anatomy and embryology; Genetics is recommended; a reading knowledge or 25 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 with a major in 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 course work in the area selected as approved by the Chairman of the major department concerned.

PRE-MEDICAL SCIENCES CURRICULUM

(Medicine, Dentistry, Veterinary Medicine)

Freshman Year

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Sophomore year

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<tbody>
<tr>
<td>Zoology 104-105, 201</td>
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<tr>
<td>Chemistry 261-262</td>
<td>5</td>
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<td>5</td>
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<tr>
<td>For Language 101 or elective</td>
<td>5</td>
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<tr>
<td>Social Science</td>
<td>5</td>
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<tr>
<td>H&amp;PE and ROTC (see below)</td>
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Junior Year

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<tr>
<td>Chemistry 245 and 270</td>
<td>4</td>
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<td>Physics 111-113</td>
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<td>For Language 101-102 or 102, 103</td>
<td>5</td>
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<tr>
<td>Social Science</td>
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<tr>
<td>Elective</td>
<td>3</td>
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<tr>
<td>Social Science</td>
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<td>100</td>
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<td>180</td>
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<td>6</td>
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<tr>
<td>H&amp;PE 100 (6 quarters)</td>
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<tr>
<td>ROTC 101-102-103, 201-202-203</td>
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<tr>
<td>(Freshman and Sophomore)</td>
<td>6-9</td>
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</tbody>
</table>

186-195

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 catalog, 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, 220, 310, 311, 312, and 411, with at least 25 credits in psychology courses numbered above 299; Mathematics 125; and a reading knowledge or five quarters (23 to 25 credits) in one modern language. Other courses recommended for psychology majors include Philosophy 210 and 353; and Zoology 101 or 292.
### RECOMMENDED COURSE SEQUENCE

**Freshman Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Psychology 110—Introduction to Psychology</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics 100—Intermediate Algebra</td>
<td>2</td>
</tr>
<tr>
<td>Modern Language 101-102-103</td>
<td>5</td>
</tr>
<tr>
<td>English 101-102-103</td>
<td>3</td>
</tr>
<tr>
<td>Psychology 220—Psychological Statistics</td>
<td>3</td>
</tr>
<tr>
<td>H&amp;PE 100—Physical Education</td>
<td>2</td>
</tr>
<tr>
<td>ROTC 101-201-302—Military or Air Science (Men)</td>
<td>2</td>
</tr>
</tbody>
</table>

16-18 16 16-18

**Sophomore Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Choice of appropriate Psychology courses</td>
<td>5</td>
</tr>
<tr>
<td>Modern Language 213-215</td>
<td>4</td>
</tr>
<tr>
<td>Psychology 240—Social Psychology</td>
<td>5</td>
</tr>
<tr>
<td>Electives</td>
<td>10</td>
</tr>
<tr>
<td>H&amp;PE 101—Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>ROTC 201-202-203—Military or Air Science (Men)</td>
<td>2</td>
</tr>
</tbody>
</table>

2 1 6-18 16-18

**Junior Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychology 310-311-312—Experimental Psychology</td>
<td>6</td>
</tr>
<tr>
<td>Philosophy 216 or Elective</td>
<td>6-5</td>
</tr>
<tr>
<td>Zoology 202—Human Physiology</td>
<td>5-12</td>
</tr>
<tr>
<td>Electives</td>
<td>5-12</td>
</tr>
<tr>
<td>Psychology 411—Systematic Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>4-6</td>
</tr>
<tr>
<td>Psychology 400-level Psychology courses</td>
<td>9-13</td>
</tr>
</tbody>
</table>

15-17 15-17 15-17

**Senior Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychology 411—Systematic Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>3-4</td>
</tr>
</tbody>
</table>

15-17 15-17 15-17

### SPECIAL REQUIREMENTS FOR THE MASTER OF ARTS DEGREE IN PSYCHOLOGY

In addition to the general requirements of the Graduate School, the following special requirements must be completed for the Master of Arts degree in psychology: at least 45 credits in courses numbered above 299, which may include not more than 10 credits in Psychology 699, and which must include Psychology 365-366-367, 399, or 499. 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 statement under Graduate School.

### FOR UNDERGRADUATES

For explanation see Index under "Symbols"

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>110 INTRODUCTION TO PSYCHOLOGY</td>
<td>1</td>
</tr>
<tr>
<td>100 PSYCHOLOGICAL INVESTIGATION</td>
<td>1</td>
</tr>
<tr>
<td>206 COMPARATIVE PSYCHOLOGY</td>
<td>2</td>
</tr>
<tr>
<td>290 PSYCHOLOGICAL STATISTICS</td>
<td>2</td>
</tr>
<tr>
<td>295 CHILD AND ADOLESCENT PSYCHOLOGY</td>
<td>2</td>
</tr>
<tr>
<td>344 PSYCHOLOGY OF LEADERSHIP</td>
<td>4</td>
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</table>

### FOR GRADUATES

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>501 THEORY CONSTRUCTION IN PSYCHOLOGY</td>
<td>1</td>
</tr>
<tr>
<td>565 PROFESSIONAL PROBLEMS IN PSYCHOLOGY</td>
<td>1</td>
</tr>
<tr>
<td>511 ADVANCED EXPERIMENTAL METHODS</td>
<td>1</td>
</tr>
<tr>
<td>512 THEORIES OF LEARNING</td>
<td>1</td>
</tr>
<tr>
<td>521 ADVANCED PSYCHOLOGICAL STATISTICS</td>
<td>1</td>
</tr>
<tr>
<td>530 ADVANCED CHILD AND ADOLESCENT PSYCHOLOGY</td>
<td>1</td>
</tr>
<tr>
<td>561 ADVANCED PSYCHOPATHOLOGY</td>
<td>1</td>
</tr>
<tr>
<td>571-572 RORSCHACH TECHNIQUES</td>
<td>2</td>
</tr>
</tbody>
</table>
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 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 and 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 in Radio-Television.

University Requirements

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>English Composition, 101-102-103</td>
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<tr>
<td>Physical Education (6 credits)</td>
<td>6</td>
</tr>
<tr>
<td>ROTC (men) Mil or Air Science 101-102-103, 201-202-203</td>
<td>6-9</td>
</tr>
<tr>
<td>Group I</td>
<td>12</td>
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<td>27-36</td>
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<td>27-36</td>
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Major Requirements:

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<tr>
<th>Group</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>Foreign Language</th>
<th>English 201</th>
<th>Speech 119</th>
<th>Drama 121, 131</th>
<th>Journalism 270, 297</th>
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<tr>
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<td>25</td>
<td>25</td>
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<td>23-25</td>
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<td>4</td>
<td>4</td>
<td>6</td>
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<td>89-91</td>
<td>89-91</td>
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</tbody>
</table>

32 hours from the following courses:

- Speech 241
- Drama 342
- Free Electives

FOR UNDERGRADUATES

For explanation see Index under “Symbols”

140 INTRODUCTION TO RADIO AND TELEVISION 1Q W S 3. Open to non-majors. History, organization, economics, social and legal responsibilities, and basic electronic theory of radio and television as media of mass communication.

240 STUDIO OPERATIONS 1Q A 1 (1-2) Open to non-majors. Operation of broadcasting and recording equipment. Production of programs.

242 RADIO-TELEVISION CONTINUITY 1Q S 3 Prereq 140 and Engl 201. The techniques of writing for radio and television. Writing programs for broadcasting.

345 NEWSCASTING (see Journalism).

346 RADIO-TELEVISION PUBLIC AFFAIRS (see Journalism).

348 RADIO-TELEVISION ADVERTISING AND MANAGEMENT 1Q W 3 Prereq 140. Study and practice with techniques of advertising campaigns. Station management and sales principles.

FOR UNDERGRADUATES AND GRADUATES

440 CINEMATOGRAPHY (see Journalism).

441-442-443 RADIO-TELEVISION PRODUCTION AND DIRECTION 1Q W S 3 in radio-television courses. Advanced course in producing and directing radio and television programs. (442 emphasizes radio, (442) and (443) emphasize television.)

444 RADIO-TELEVISION SEMINAR 1Q W 3 Prereq or corequisite 441. Radio and television and their effect on society with emphasis on responsibilities of the broadcasting industry.

RELIGION

Courses of a non-sectarian nature are offered for general education purposes. Although no degree is offered in Religion, up to 15 credits in the courses listed below may be counted for graduation in other curricula where the professional requirements leave room for such electives. The instruction includes the use of religious literature, including the scriptures, along with church and religious history and contemporary thought and scholarship. No attempt is made to indoctrinate the student in beliefs or creeds.

The Montana School of Religion was organized in 1924 by a committee representing the University and several religious denominations for the purpose of making courses in religion available to students. The School is affiliated with the University, under a director who is responsible to a Board of Trustees representing the cooperating denominations and the University.

FOR UNDERGRADUATES

For explanation see Index under “Symbols”

118 INTRODUCTORY STUDY OF RELIGION 1Q A W S 2. Some major religions of the world, and some basic religious problems a student must face. (Open only to freshmen and sophomores.)

123 LIFE AND TEACHINGS OF JESUS 1Q W S 3. The origins, backgrounds, problems, occasions, motifs and messages of the four gospels with an attempt to relate the teaching of today.

142 RELIGION IN AMERICA 1Q A W 3. The beliefs and practices of Judaism, Protestantism, Roman Catholicism, and representative sects.


224 LIFE AND TEACHINGS OF PAUL 1Q W S 3. The origins, backgrounds, problems, occasions, motifs and messages of ten epistles of Paul the apostle and their implications and applications for today.

241 CHRISTIANITY TO 1700 1Q W S 3. The background and trends of the Christian Church, its spread through the Roman Empire, and growth in the centuries following.

250 BASIC CHRISTIAN CONVICTIONS 1Q W S 3. The realities of God, man, sin, Jesus Christ, and redemption interpreted in meaningful terms for our day.

251 CHRISTIAN THINKERS BEFORE 1800 1Q W 2. The thoughts of outstanding theologians such as Augustine, Aquinas, Luther, and Calvin, through study of their writings.

252 MODERN RELIGIOUS THINKERS 1Q W 2. The thoughts of outstanding theologians such as Kierkegaard, Tillich, Marcel, and Buber, through study of their writings.

304 COMPARATIVE WORLD RELIGIONS 1Q A S 5, Su 3. Ten to twelve living religions of the world, their historical sequence and philosophical and theological affirmations.

309 THE PROPHETS AND THEIR TIMES 1Q A 3. The Old Testament prophets including Isaiah, Jeremiah, and Ezekiel and twelve other personalities from the biblical writer’s point of view and related to today.

330 PRINCIPLES OF RELIGIOUS EDUCATION 1Q 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 OFFICERS TRAINING CORPS

The ROTC program is conducted by career Army and Air Force personnel. Both Departments offer 6 quarters of ROTC training to satisfy University requirements. All undergraduate male students other than veterans are required to take two years of Air Science or Military Science during their freshman and sophomore years. Students interested in careers in the Air Force or Army should consult the Professor of Air Science or the Professor of Military Science.

AIR SCIENCE

BASIC COURSE: AIR AGE CITIZENSHIP EDUCATION

The academic requirements of the basic courses autumn and winter quarters of the freshman year and spring quarter of the sophomore year will be met through enrollment in any group requirement with the exceptions of Art, Drama, or Music courses.

101-102-103 FOUNDATIONS OF AEROSPACE POWER 3Q A W S 101-102-103. Basic Military Training, including exercises in drill ceremonies, and customs, with emphasis on proficiency and teamwork (current quarter is not elective but must be selected from appropriate Group requirements). (103) Conflicts in the aerospace age and organization for national security. Basic military training in drill ceremonies and customs with emphasis on proficiency and teamwork.

201-202-203 FUNDAMENTALS OF AEROSPACE WEAPON SYSTEMS 3Q A W S. Professor of Military Science, with emphasis on the various components and their role as a part of the national defense team. Leadership, drill and command, basic and progressive training in leadership through practical exercises in drill ceremonies, military customs and traditions. (203) Military training in drill ceremonies and customs with emphasis on proficiency and teamwork.

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 courses is required for all bachelor's degrees. Certain phases of Air Force Officer Development may be taught alternate years and the two classes are combined for this instruction.

301-302-303 AIR FORCE OFFICER DEVELOPMENT 3Q A W S. Subject matter will be announced to advanced students by the Air Force Department.

304 SUMMER TRAINING UNIT No credit. Four weeks at an Air Force Base after completion of Air Science 301-302-303. Organization and functions of an Air Force Base, air crew and aircraft indoctrination, officer orientation, military fundamentals, physical training and individual weapons.

401-402-403 AIR FORCE OFFICER LEADERSHIP AND MANAGEMENT 3Q A W S. Concurrent enrollment in Geog 201-202-203, Elective required. Subject matter will be announced to advanced students by the Air Force Department.

MILITARY SCIENCE

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, the student needs and general education. It is also recommended that the high school preparation include trigonometry, physics and either French, German, Spanish, or Russian.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE WITH A MAJOR IN MILITARY SCIENCE

University Requirements Credits

English 101-102-103 3

Mathematics 116, 113, 118, or equivalent 13

Physics 111-112-113 or 221-222-223 13

History 102, 103 and 334 13

Pol. Science 101, 202, 263, 231 16

Geography 231-232 6

Spanish 201, 202 and 204 9

French Language (French, German, Spanish or Russian 101-102-103, 213, and 213 or equivalent) 23

Electives 301-262-203, 401-462-463, and 313... 18

101-102-103 INTRODUCTION TO THE ARMY 3Q A W S 0, 0, 0. Enter any quarter. (101) Principles of Army organization, missions, chain of command, and unit operations. The Army Structure and the various commands and their role as a part of the national defense team. Leadership, drill and command, basic and progressive training in leadership through practical exercises in drill ceremonies, military customs and traditions. (103) Military training in drill ceremonies and customs with emphasis on proficiency and teamwork.

301-302-303 ADVANCED INDIVIDUAL TECHNIQUES 3Q A W S. Entrance any quarter. (101) American Military History: a survey of American Military History from the origins of the American Army to the present with emphasis on the factors which led to the establishment of the armed forces. (102) Principles of leadership, drill and command. (103) Principles of leadership, drill and command.

ADVANCED COURSE: OFFICER TRAINING

Enrollment in the advanced course is by application only. An applicant may pass a physical examination and the mental screening test prescribed by the Department of Army. Further, he must be recommended by both the University and the Professor of Military Science. Upon enrollment, he is required to enter into a contract with the Government stipulating that he will pursue the course of study prescribed and be relieved by competent authority, and further that he will accept a commission if tendered. Advanced cadre cadets are paid a subsistence allowance of $90 per day through the year except while at summer camp in which case he receives the pay of a Private E-1. If commissioned, the length of service is as required by Federal Reserve Forces Act of 1955, with amendments.

301-302-303 PRINCIPLES AND TECHNIQUES OF THE MILITARY LEADER 3Q A W S 3. Enter any quarter. (301) Leadership principles and instructional techniques influencing unit leadership, development of unit structure and functions of the branches of the Army. Leadership, Drill and Command—to include practical work in instructing and directing military units and small unit tactics, including the principles and techniques of leading small units from the platoon to the company. Continuation of Leadership, Drill and Command. (303) Continuation of small unit tactics and introduction to Army Communication Systems. Orientation of Summer Camp Activities. Continuation of Leadership, Drill and Command.

313 SUMMER CAMP No credit. Six weeks at an Army training center after completion of 303 from middle of June through first week of August. Practice in military leadership and observation of military organizational structure with emphasis on the development of discipline and qualities of leadership.

401-462-463 MILITARY MANAGEMENT 3Q A W S 3. Prereq 301-302-303. Principles of military organization and operations to include staff organization 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; practical exercise of leadership functions as an officer in command positions during periods of drill and ceremonies. (402) Military Administration and Logistics, including personnel and supply management and procedures, troop movements by foot and motor, motor pool management; military justice and courts-martial procedure with practical work in moot court. Continuation of Leadership, Drill and Command. (403) Continuation of Military Administration, orientation on life in active military service. Continuation of Leadership, Drill and Command.

SECRETARIAL - HOME ARTS

is a curriculum, designed especially for women, combining work in Secretarial Science and Home Economics. Home Economics provides a base for successful home and family life; and Secretarial Science provides training for a vocation for immediate or future use.

The courses in secretarial science provide training in typing, shorthand, filing, the use of office machines, and secretarial practice as preparation for general office work. Opportunity is provided to add proficiency in secretarial courses if added proficiency is desired. The work in home economics includes the study of nutrition, home equipment, house planning and furnishing, budgeting, child development, and family living. In addition, a general education is provided in areas outside the major fields.

SPECIAL REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN SECRETARIAL-HOME ARTS.

University Requirements   Credits
English 101-102-103 .......................... 9
Physical Education 100 (6 quarters) ...... 6
Group Requirements
Group I 12-15

Major Requirements
Home Economics 141, 155, 157 .............. 11
146 or 246 .................................. 4
210 ......................................... 3
393 ......................................... 3
395 ......................................... 3
396 ......................................... 3
369 or 367 or 368 or Soc 402 .............. 3
303 ......................................... 2

Home Economics courses with credit toward major with 186 total credits not to exceed 39 cr.
Business Administration 182 (Placement test required) .......... 2
183 (Placement test required) .......... 2
184, 185, 186 (1 year in H.S., no cr. in 186; 2 yrs. in H.S., no cr. in 184 or 185) .... 15
187 ......................................... 1
190 ......................................... 1
191 ......................................... 1
192 ......................................... 1
201 ......................................... 1
384 ......................................... 3

Business Administration courses with credit toward major with 186 total credits not to exceed 39 cr.
Special requirements outside major.
Foreign Language (3 quarters or placement test) .......... 12
Economics 201 ................................ 3
Psychology 119 ................................ 3
History 102, 103, 105 (2 quarters) .......... 10
Political Science 101 .......................... 4
Free Electives ................................ 32-37

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE. In addition to the general requirements for graduation listed earlier in the catalog, the following courses must be completed for the Bachelor of Arts degree with a major in Social Welfare: 20 credits in departmental courses including at least 20 credits in Social Welfare. A foreign language is required as listed earlier in the catalog.

During the first two years, the following courses should be taken to provide a broad foundation: Anthropology 120 or 135; 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 theoretical and practical courses 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.

FOR UNDERGRADUATES

For explanation see Index under “Symbols”

181 THE FIELD OF SOCIAL WELFARE 1Q a/q 5 Social welfare functions. Development of modern social welfare and the distinctive features of the profession.

361 INTRODUCTION TO RECREATION LEADERSHIP 1Q A 3 Prereq Sociology 101. Recreation and leisure time: community approach to recreation; recreation for industrial workers, hospital patients, senior citizens, playgrounds; facilities and resources. Credit not allowed for this and H&PE 362.

362 RECREATION LEADERSHIP (SOCIAL RECREATION) 1Q W 1 Prereq Sociology 101. Principles and practice in group leadership, program skills for various age groups and for special groups such as the handicapped. Credit not allowed for this and H&PE 362.

363 RECREATION LEADERSHIP (CAMP LEADERSHIP) 1Q S 2 Prereq Sociology 101. Principles and practice in group leadership of outing activities; skills and understandings essential to organized camping. Credit not allowed for this and H&PE 363.

383 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 the principles recognized as basic in their use.

FOR UNDERGRADUATES AND GRADUATES


383 GROUP METHODS IN MODERN SOCIETY 1Q S 4 Prereq 181. Purposes, principles and methods involved in group process. The place of group experience in a democracy. The role of the group member, leadership, achieving group effectiveness. Group dynamics.

384 PUBLIC WELFARE 1Q A 4 Prereq 181. Development, organization, functions and methods of governmental programs designed to protect individuals and families against the loss of income due to such hazards as unemployment, illness, disability, old age and death.

481 CASE STUDIES 1Q S 4 Prereq 12 credits in Social Welfare and 181. The analysis of case records drawn from a variety of social work settings.
SOCIOLOGY

is a field in social science concerned with the behavior of people in groups, particularly societies and cultures, and the institutional arrangements under which people live. It is concerned with contemporary civilization.

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 also a preparatory background for those who, after other studies, plan to engage in many of the familiar professions.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE. In addition to the general requirements for graduation listed earlier in the catalog, 50 credits in departmental courses are required for the Bachelor of Arts degree with a major in Sociology. A foreign language is required as listed earlier in the catalog.

At least 35 of the 50 major credits must be in sociology courses, including Sociology 101, 205, 303 and 310. Anthropology 102 or 193 and Social Welfare 182 must be taken. Remaining credits for the major may be selected from any courses in the department. Credit may be allowed for Psychology 240 and Sociology 440.

For those who plan to go into work that requires a background in both sociology and economics, the following courses in addition to general departmental requirements should be completed: Sociology 304, and at least 12 additional upper division sociology: Economics 201-202-203, 211 and at least 12 additional upper division credits of economics.

MASTER OF ARTS IN GUIDANCE AND COUNSELING. See statement under Graduate School.

SPEECH

includes courses in the field of General Speech, and according to the interest of the student, emphasis in one or more areas of concentration: Public Address and Forensics, Speech Pathology and Audiology, Speech Education, Oral Interpretation, 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, or do professional speaking.

The curriculum in Speech is designed to provide cultural background and technical training in oral communication which will contribute to student competence in social situations, in a chosen profession, and in professional speech work.

The Bachelor of 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 catalog, 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, 261, 302.
FOR UNDERGRADUATES

For explanation see Index under "Symbols"

111 PRINCIPLES OF SPEECH 1Q A W S 5. This course aims, through various experiences in group discussion, oral reading, and public speaking, to develop constructive attitudes, organized thinking, and logical reasoning. They contribute to effective communication and human relations.

112 ARGUMENTATION 1Q A W S 5. The principles by which belief and conduct are influenced through appeals to logical reasoning, attention to evidence, evidence, logical reasoning, refutation, rebuttal, and their application to current economic, social and political problems.

113 PARLIAMENTARY PROCEDURE 1Q S 2. The principles and practice of parliamentary procedures in the conduct of fraternal, professional and community meetings.

118 VOICE AND DICTION 1Q A W S 3. Application of principles to the improvement of voice and diction.

119 PHONETICS 1Q A 3. The speech mechanism in relation to the production of auditory symbols. Introduction to the use of phonetic symbols.

123 PUBLIC SPEAKING 1Q A W S Su 3 Prereq 111. A beginning course in public speaking, offering additional theory and practice to what is offered in 111.

214 DISCUSSION TECHNIQUES 1Q A 3. Study and practice in the techniques in making inquiries into and solving problems by the means of group thinking.

241 RADIO-TELEVISION SPEECH 1Q W 3 Prereq 118 and Journalism 140. Study and practice in the styles and techniques of oral presentation for radio and television under broadcast conditions.

261 INTRODUCTION TO ORAL INTERPRETATION 1Q A 3 Prereq 118. Study and practice of the techniques in the oral presentation of manuscript materials.

262 ORAL INTERPRETATION OF LITERATURE 1Q W 3 Prereq 261 or =. Critical analysis of literature for oral presentation and the enhancement of literature through oral and auditory experience.


315 PUBLIC PERFORMANCE 1Q A W S V 1-2 R-6 Prereq c/. The principles of public performance. Practice in presenting before public audiences, oral readings, lecture recitals, choral reading or public addresses.

FOR UNDERGRADUATES AND GRADUATES

316 BUSINESS AND PROFESSIONAL SPEAKING 1Q A W S 3 Prereq 5 credits in Speech. The methods and techniques of speaking by leaders in business, labor, education, and the professions.

317 SPEECH IN TEACHING AND LEARNING 1Q A 3 Prereq 5 or in Speech. The speech competence of the teacher, the use of speech in teaching, office, and the principles by which the teacher works with the speech of his students.

318 APPLIED PHONETICS 1Q S 3 Prereq 119 or =. The narrow transcription into phonetic symbols of dialects, deviations from, and variations within the standard American speech, their causes and frequency of appearance.


322 THE MODERN FORENSICS PROGRAM 1Q Su only 3 Prereq 10 credits in Speech. The coaching and direction of debate, oratory, declamation, extemporaneous speaking, and other speech contest activities in high schools and colleges.

343 ADVANCED PUBLIC SPEAKING 1Q S 3 Prereq 10 credits in Speech. Theories of speech composition, models of contemporary public address.


345 HISTORY OF PUBLIC ADDRESS 1Q W 3 Prereq 10 credits in Speech. The biographies and speeches of representative speakers, the issues with which they were identified, and their influence on the history of their period. The ancient Greek and Roman, British, and American public speakers of prominence.

352 ORAL COMMUNICATION 1Q A 3 Prereq c/. The process of oral communication in terms of relevant theory and evidence from the social sciences. Particular attention is given to conditions that facilitate and inhibit effective communication.
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 game 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 Fish and Game 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. Instructors proceed 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 Park 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.

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 WILDLIFE TECHNOLOGY. In addition to the general requirements for graduation listed earlier in the catalog, 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 additional courses from the following: Zoology 106, 306, 308, 309, 326, 461; Botany 368; Chemistry 125, 246; Geology 101, 111, 112. Students should be aware that the student plan to attend a Biological Station for one summer.

Students electing the Terrestrial option should elect additional courses from the following: Zoology 303, 307, 310, 328; Forestry 210; Geology 101; Microbiology 200.

CURRICULA IN WILDLIFE TECHNOLOGY

Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Botany 121, 122, 123—General Botany, Local Flora</td>
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<td>Chemistry 101, 102, 106—General, Survey Organic English 101, 102, 103—Freshman Composition</td>
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<td>Mathematics 100—Intermediate Algebra</td>
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<td>Mathematics 113—Trigonometry</td>
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<td>Group Requirements</td>
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<td>H&amp;EPE 100—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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<th>Course</th>
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<tr>
<td>Zool 104-105, 201—Elem. Zoology, Comparative Anatomy</td>
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<tr>
<td>Phys 111, and 112 or 113—General Physics</td>
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<tr>
<td>Group Requirements (5 or 10 credits winter or depending on previous 112 or 113)</td>
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<tr>
<td>H&amp;EPE 100—Physical Education</td>
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<td>ROTC 201-202-205—Military or Air Science</td>
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ZOOLOGY

is the study of animals—how they are put together, how their bodies work, and how they adjust to their surroundings. It is a basic science for many professional fields such as medicine, pharmacy, wildlife, and physical education.

The Master of Arts (or Master of Science) and the Doctor of Philosophy degrees are 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. Graduates become high school teachers or, after advanced studies, instructors in colleges and universities. Others enter state or federal government service in health and conservation agencies. Many, with further training, enter medicine or related fields. A few establish themselves as fish culturists, fur farmers, pest control experts, and so on.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN ZOOLOGY. In addition to the general requirements for graduation listed earlier in the catalog, the following special requirements must be completed for the Bachelor of Arts degree with a major in Zoology: 45 credits in Zoology including Zoology 104-105, 106, 201, 302, 328, 340, 353, 364; 1 credit of 429.

The following must also be completed: Botany 121-122, 123; Chemistry 121-122, 123; Mathematics 113, 116, 11B; and Physics 111-112, 113 or 221-222, 223.

Students who contemplate graduate work in Zoology should elect during their junior or senior years, Microbiology 200 and Zoology 303, 305.

The foreign language requirement listed earlier in the catalog must be satisfied. French, German, Russian, 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 33 credits in Zoology or related fields as follows: Zoology 104, 106, 201, 302, 305, 310, 321, 328, 364, 365, 366, 461; any one course from Microbiology or from Botany or one course from Zoology 303, 305, 333, 340, 341.

Senior examinations are given only to candidates for honors.

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

SUGGESTED CURRICULUM IN ZOOLOGY

Freshman Year

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Zoology 104, 106, 108—Elementary Zoology and Field Zoology

Sophomore Year

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English 101, 102, 103—Freshman Composition

Junior Year

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Math 116, 118, 119; 117, 118, 119; Trig, and Anal Geom and Calculus

Senior Year

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H&P 100—Physical Education

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ROTC 101, 102, 103—Military or Air Science

FOR UNDERGRADUATES

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101 GENERAL ZOOLOGY 1Q A W S 5 (3-4). Certain basic biological principles as exemplified by the study of the characteristics of animal protoplasm and selected invertebrates and a vertebrate form.

104-105 ELEMENTARY ZOOLOGY 2Q A W 5 (3-4). A survey of the invertebrates and the prochordates, anatomy, physiology, phylogeny and various zoological principles.

106 FIELD ZOOLOGY 1Q S 3 (2-5). Su at Biological Station Pre req 101 or 104, 105. Collection, identification and preservation of animals. Field work.

201 COMPARATIVE VERTEBRATE ANATOMY 1Q 5 (3-4) Pre req 101 or 104 or one laboratory course in Zoology. A comparative anatomy, morphology, and phylogeny of the vertebrates.

302 HUMAN PHYSIOLOGY 1Q S 5 (3-4) Pre req Sophomore standing or two quarters of college Zoology. The normal physiology of blood circulation, respiration, digestion, excretion, irritability, locomotion, coordination, and reproduction.
307 AQUATIC BIOLOGY 1Q A 5 (3-7) Prereq 166 and Bot 123. The biota of fresh water with emphasis upon the flora and invertebrate fauna, with some consideration of their relationship to the food chains and habitats of aquatic vertebrates. Ecology, identification and taxonomic position of aquatic organisms below vertebrates.

309 ORNITHOLOGY 1Q S 5 (3-6), Su 3 at Biological Station, Prereq 201. The structure, classification and life histories of birds. Weekly field trips. Students are expected to provide themselves with binoculars.

309 MAMMALOLOGY 1Q A 5 (3-4), Su 6 at Biological Station, Prereq 201. The classification, identification and life histories of mammals. Saturday field trips.

310 Ichthyology 1Q A 5 (3-4) 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 INVERTEBRATE ZOOLOGY 2Q A W 5 (3-4) e/y Prereq 104-105 and one additional zool course. The anatomy, embryology, and phylogeny of the invertebrate animals.

312 PROTOZOOLOGY 1Q A 5 o/y Prereq 104-105. Taxonomy, structure, natural history, physiology, and ecology of non-parasitic protozoa.

328 ANIMAL ECOLOGY 1Q S 5 (3-8) e/y Prereq 106, Bot 123 or = Zool 307 or 311, 312 recommended. The relationships between animals and their environment with special emphasis on the invertebrates. Saturday field trips.

335 VERTEBRATE ENDOCRINOLOGY 1Q S 3 (2-4) Prereq 201, 302. The microscopic anatomy and the normal physiology of the major glands of internal secretion of vertebrates. Correlative problems employing surgical and experimental techniques may be undertaken.

340-341 VERTEBRATE PHYSIOLOGY 2Q A W 5 (3-4) Prereq 241 or =, three quarters of college chemistry. (340) General physiological properties of protoplasm; blood, body fluids, and circulation: respiration and excretion. (341) Digestion, nutrition and intermediary metabolism: excretion, conduction, responses, senses; endocrine systems and reproduction.

350 ECOLOGY OF WILDLIFE POPULATIONS 1Q W 3 (3-0) Prereq 261. The population dynamics of wildlife species with emphasis on prey and predators. Interaction, carrying capacity, predation, methods of census and harvest.

364 INVERTEBRATES OF THE INTERMOUNTAIN REGION 1Q Su 3 (5-12) Prereq 106. The ecology, taxonomy and distribution of the invertebrates of the Rocky Mountain area, exclusive of parasites and insects.

365 ENTOMOLOGY 1Q 5 S 3 (3-4) o/y Su 6 at Biological Station, Prereq 101 or 104-105. The structure, classification, life histories, distribution and ecology of insects.

366 AQUATIC INSECTS 1Q Su 3 (3-12) Prereq 104-106 or 101 and one additional Zool course. The insect fauna, both immature and adult, aquatic habitats of Western Montana.

366 GENETICS 1Q A 5 (3-4) Prereq 201 or Bot 223. The mechanism of heredity, involving consideration of Mendelian inheritance, linkage systems, chromosomal aberrations, extra-chromosomal inheritance, and their relationship to structure and function. Credit not allowed for this course and Botany 366.

369 EVOLUTION 1Q A 3 (3-9) o/y Prereq 106 and Bot 121, 122, 123, 385 or concurrent registration. The theories of evolution from the historical point of view: the nature of evolutionary processes, the evidence for evolution, and the factors of evolution. Credit not allowed for this and Botany 386.

401 CELLULAR PHYSIOLOGY 1Q W 5 (3-4) o/y Prereq Physics 113 or 223, Chem 265, and 5 courses in Botany, Microbiology, or Zoology. The life processes at the cellular level emphasizing the methods of physical science.

422 COMPARATIVE PHYSIOLOGY 1Q W 5 (3-4) e/y Prereq Physics 113 or 223, Chemistry 263 and one animal physiology course. A survey of the diverse ways in which different kinds of animals meet their functional requirements.

413 FISHERY SCIENCE 1Q W 3 (3-6) e/y Prereq 307, 310. The problems involved in investigations on fisheries biology. Ecology, analysis of, and some actual field experience in, methods employed in attacking these problems. Field trips.
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