

1-1-1959

1959-1960 Course Catalog

University of Montana--Missoula. Office of the Registrar

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MONTANA STATE UNIVERSITY

MONTANA
STATE
UNIVERSITY



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



1959-60 GUIDEBOOK

MISSOULA,
MONTANA

PURPOSE OF GUIDEBOOK

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

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

USE OF GUIDEBOOK

1. The table of contents below may be used for locating information under broad general headings. For specific items of information, check the INDEX on inside of back cover.
2. Students should study with care those sections on REGISTRATION AND GENERAL REGULATIONS and on GRADUATION REQUIREMENTS. This information should be reviewed before registration periods.
3. When checking on particular courses, be sure to review the EXPLANATION OF SYMBOLS on page 20.
4. Plan your program at least a year in advance and double-check it against the printed schedules of classes since there are often deviations from the listings in the Guidebook.
5. If you have selected a major, study carefully the specific additional requirements for graduation listed under your chosen field.
6. When in doubt as to meanings or interpretation of listed information, consult your adviser or department chairman.

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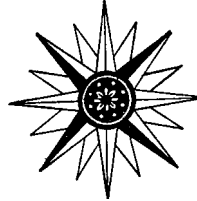
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ENROLLMENTS

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

LIBERAL ARTS

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



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

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

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

University Requirements	Credits	
English Composition (101-102-103 recommended)	9-10	
Group I (Lab. sciences and mathematics recommended)	15	
Physical Education	6	
Military Science (men)	10	30-41
Major Requirements (Courses under 300)		
1. Art 231-232-233	9	
2. Foreign Language (5 quarters)	23	
3. Economics, Psychology, Sociology, Anthropology	20	
4. History and Political Science, (History 101-102-103 recommended)	20	
5. Humanities (General 151-152-153)	15	
6. Literature (English 211-212-213 and 231-232-233 recommended)	20	
7. Philosophy	15	122
Major Requirements (Courses 300 and above)		
In two of the following three fields the student elects upper division courses equal to the number of credits indicated for those fields:		
8. Economics, Psychology, Sociology, Anthropology	12	
9. History and Political Science	12	
10. Literature or Philosophy	12	24
Free Electives	10-0	10-0

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CORRECTIONS PLEASE!

On page 17, following RESIDENCE HALLS, bottom of page, change \$141 to \$143, \$160 to \$162. Board and room (double room), including the club fee and room deposit will be:

Autumn quarter 1959	\$234.00
Winter quarter 1960	205.00
Spring quarter 1960	205.00

Total for year

\$644.00

Full details including schedule of payments are sent to students in form of a special Residence Halls Leaflet.

Montana State University Bulletin

Number 483

May, 1959

Published at Missoula, Montana. Issued five times yearly: January, February, March, May, and December. Entered as second-class matter at the post office at Missoula, Montana, under Act of Congress August 24, 1912.

For publications and detailed information concerning the different schools and colleges address the Registrar of the particular institution concerned. Communications intended for the Executive Office of the University of Montana should be addressed to the State Capitol, Helena, Montana.



The javelin . . . symbol of purpose,
direction, high aim—Interscholastics



Montana beckons to the pioneers of a
new age . . . America's Youth. Gone are the
trail blazers of the old West. . . . Here are the
mind builders of the new West.

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

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

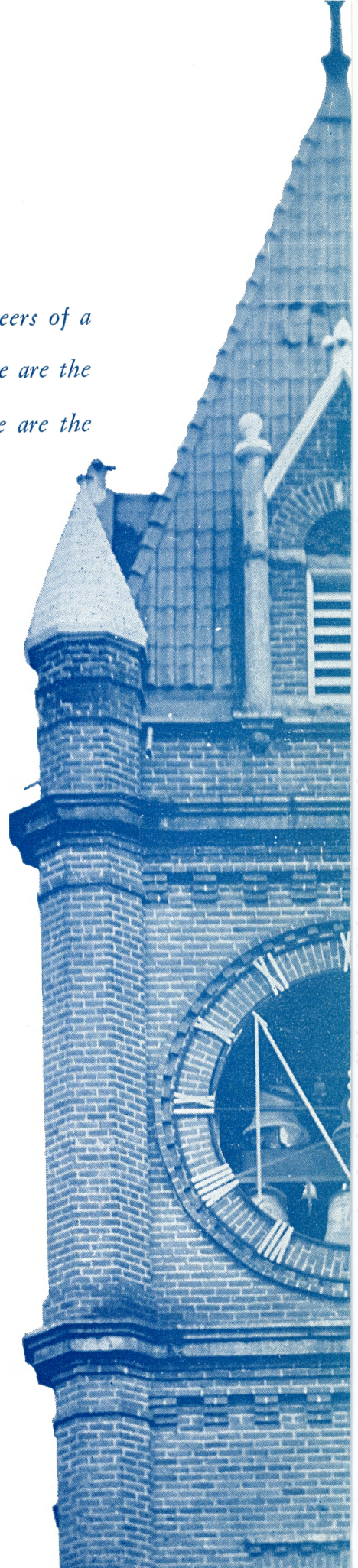
Montana State University is dedicated in service to this
living group . . . today's newest pioneers, in search of higher
education and the knowledge of truth.



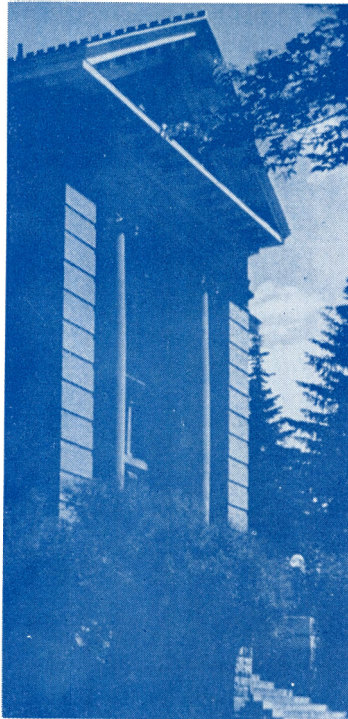
Fine Arts sketch class . . .
outdoors on campus Oval



A scientific eye needs a micro-
scope . . . not a preconception



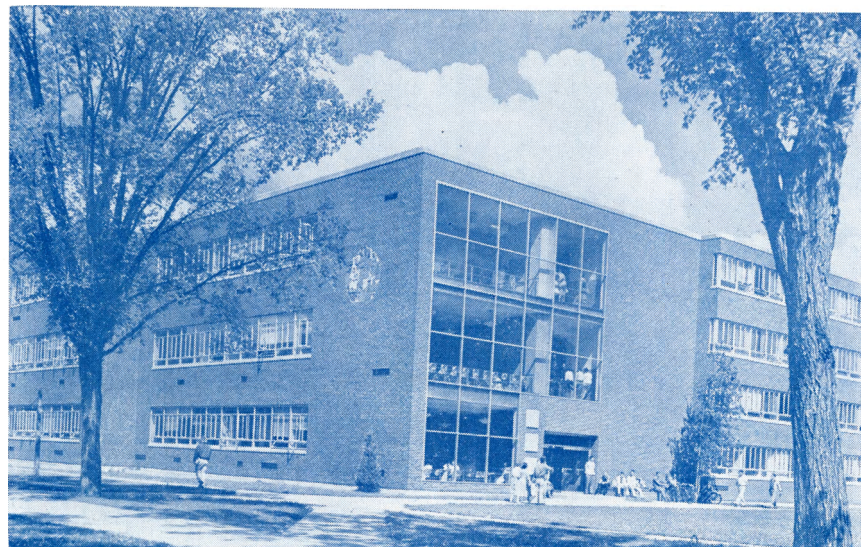
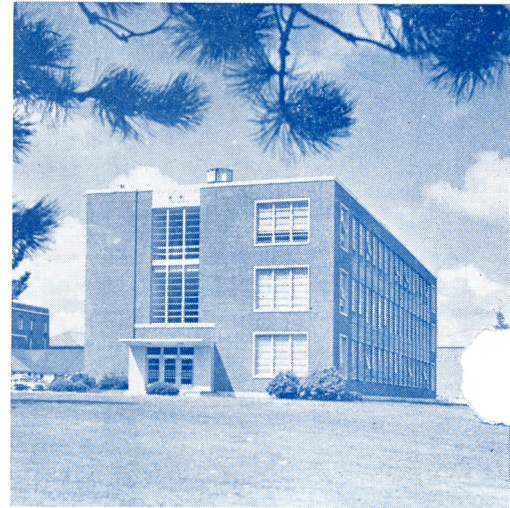
MSU Law School, fifty-years-to-be in 1960-61. A higher percentage of its graduates are now judges and outstanding practitioners in recognized out-of-state jurisdictions, than from any Law School in the West.



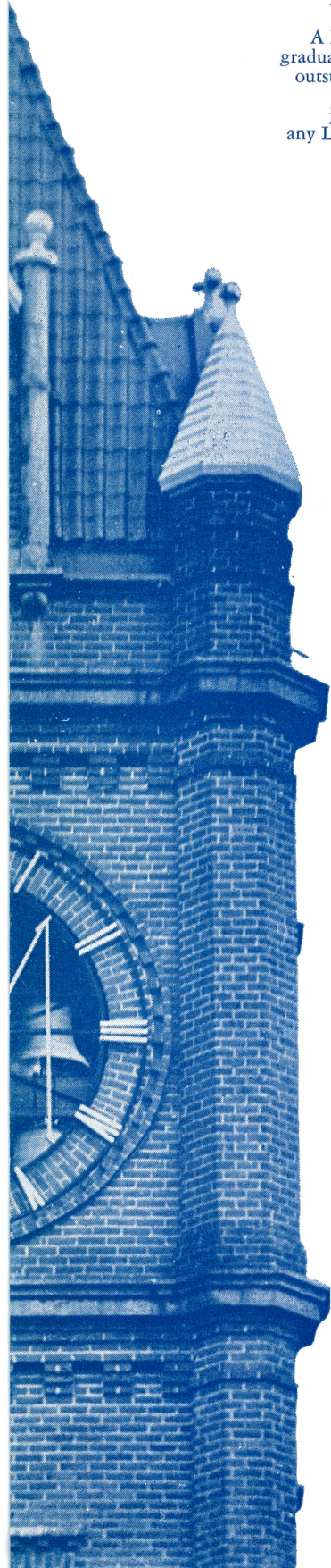
"Settling the overdues"
— Library Loan Desk

» MSU

Business Administration - Education;
Bureau of Business and Economic
Research



Liberal Arts . . . central hub of diversified studies





"Look Peter, the sky!"
—The Diary of Anne Frank

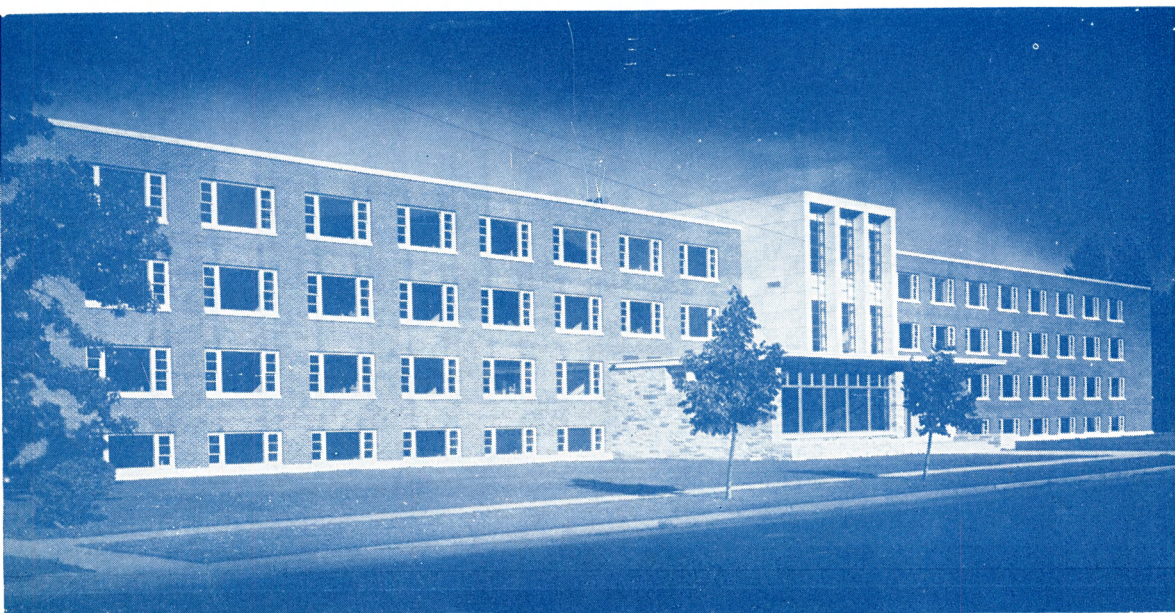
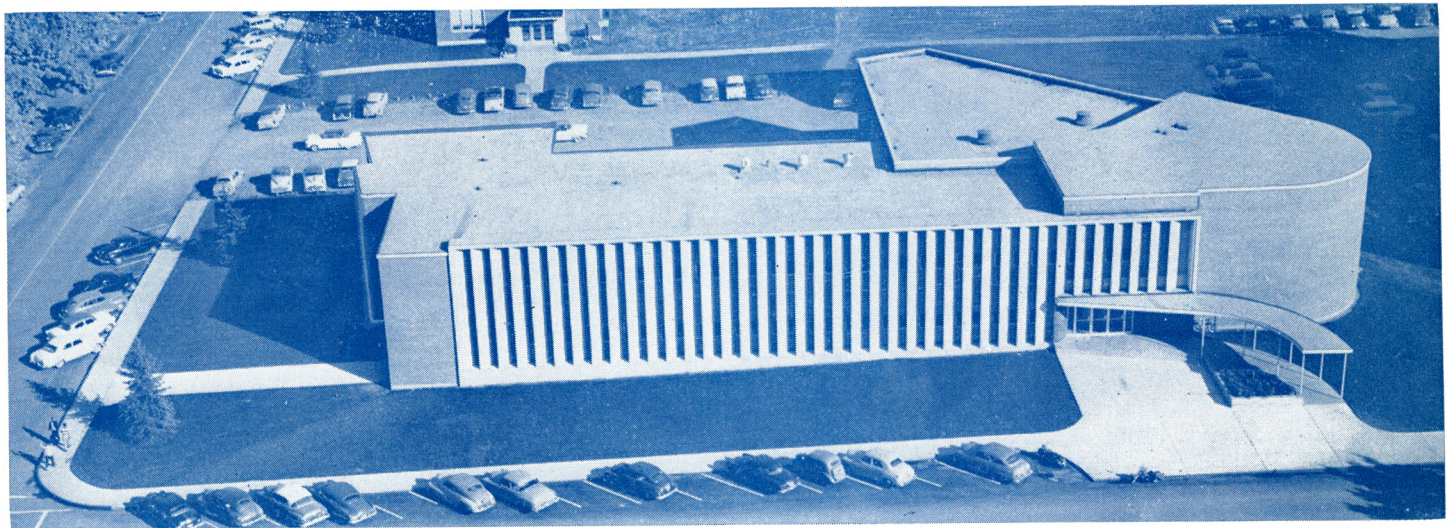


Three of 90 Canadians
. . . home, at MSU



The clock tells time
of many seasons

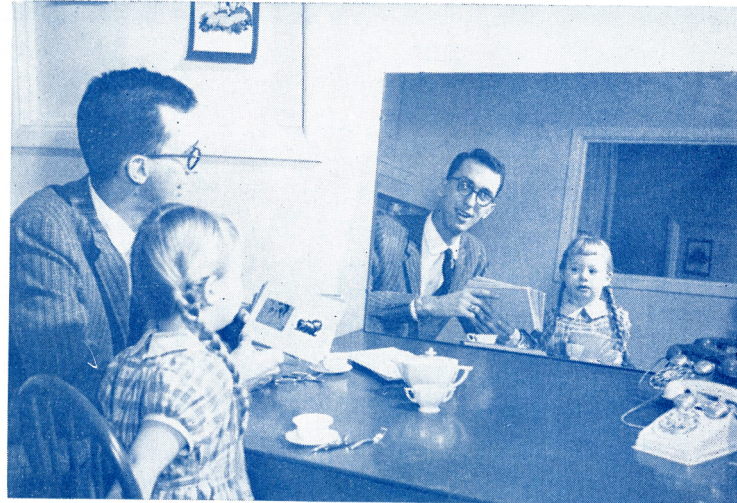
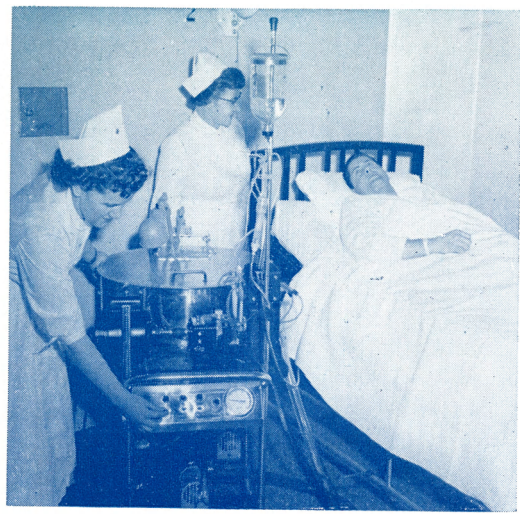
is the New West . . . a modern twentieth century frontier . . .



● MSU School of Music
and Recital Auditorium

● Craig Hall one of the
spacious residences (with
Duniway Annex)
adequately houses
624 students

Extra-Corporeal Hemodialyzer, "artificial kidney" . . . (for community clinical purposes and research), circulates body's entire blood supply every 10 minutes.



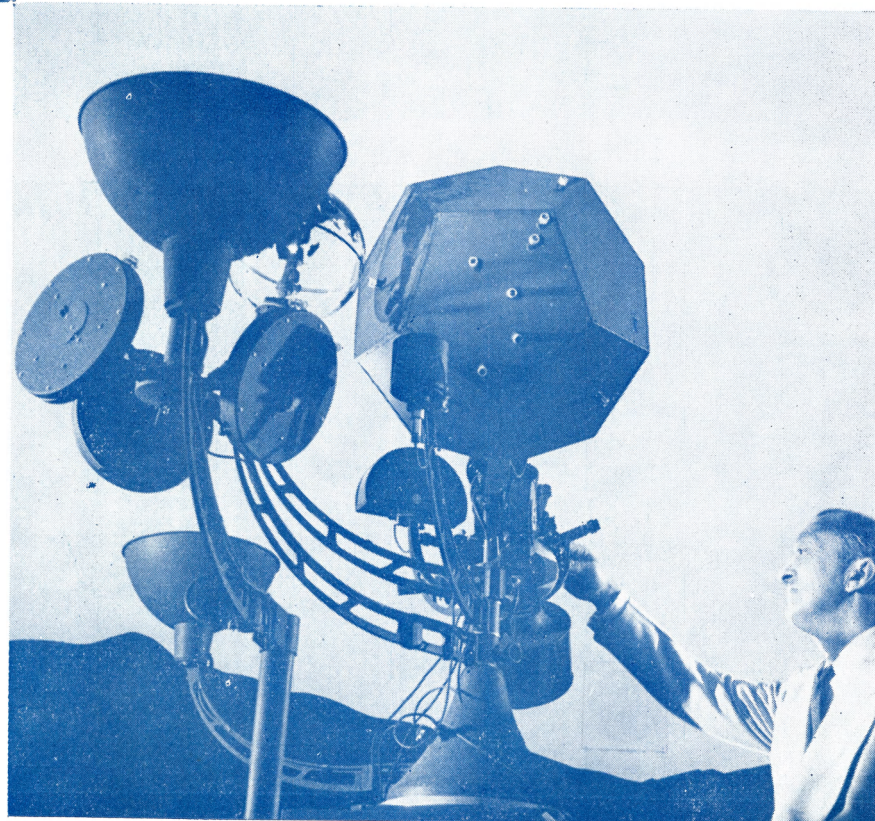
Graduate student uses mirrors and vocabulary cards to make corrections in speech sounds. A 10-room Speech and Hearing Clinic provides training and research for students; clinical service in Western Montana.

Significant Research . . .

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

An Astro-Projector For an Air-Space Age . . .

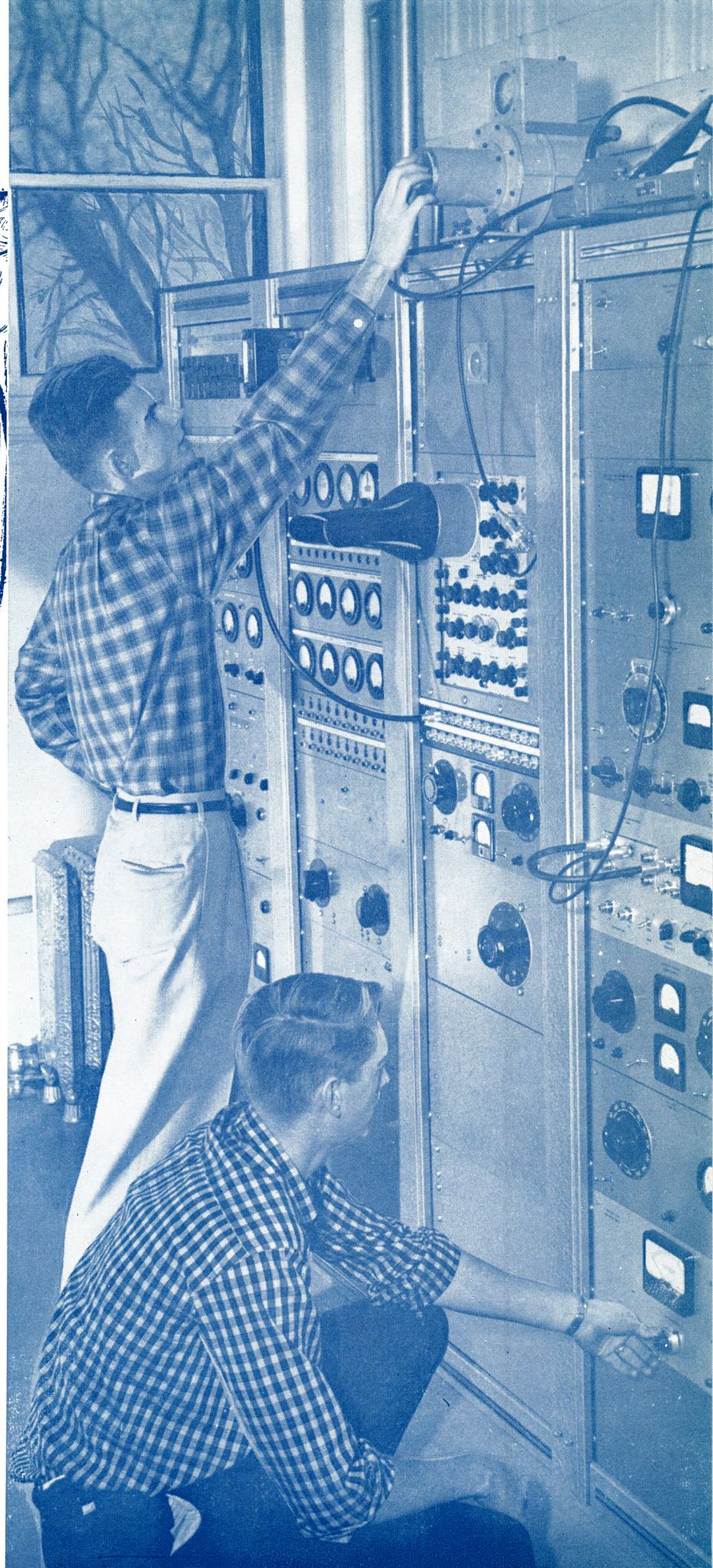
Central figure beneath the dome of the MSU Planetarium is a phenomenal apparatus that can locate a satellite and trace its route; Of perhaps three in the West, it is one of the finest of a limited series in the United States. Viewed by thousands of all ages at public lectures; its value in the teaching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

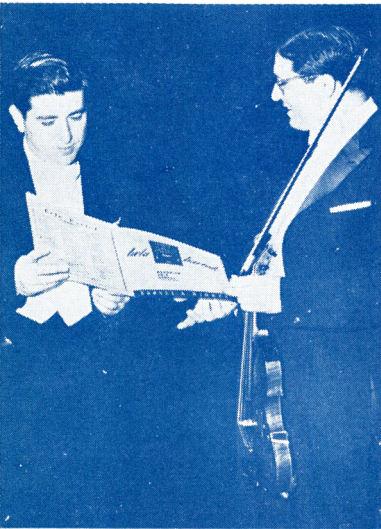




*Strides
in the
Sciences . . .
and related fields*

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





Meditation . . . to insight . . . to solution—
MSU Library Reading Rooms

Among the Year's Visiting Notables:

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



From Football . . . to Forestry . . .
to MSU'S Ballet Theatre.

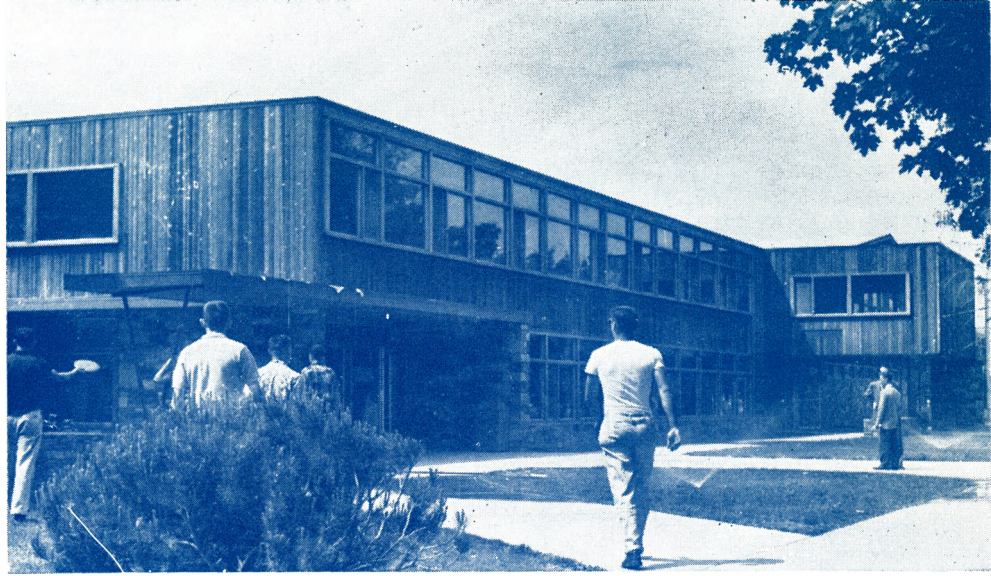
The 32-piece Montana State University Symphonette



*Award-winning
Montana Kaimin*

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

(photo below)



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



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



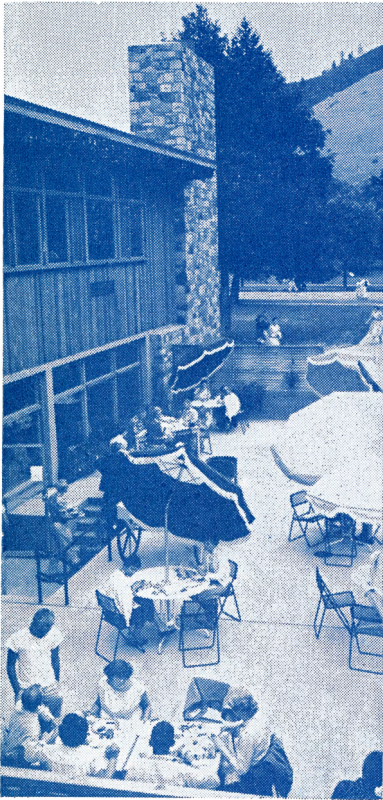
Linguist, supervising Freshman class in language laboratory

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



The new MSU Television Center . . . expanding rapidly





New Swimming Pool features 7 racing lanes, an underwater vacuum cleaner, crystal mountain water . . . dehumidified air in spectator balconies!

The matchless abundance of year 'round recreation . . .

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



Please Note!

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

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

THE UNIVERSITY OF MONTANA

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

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

MONTANA STATE BOARD OF EDUCATION

J. HUGO ARONSON, Governor	Ex-Officio President
FORREST H. ANDERSON, Attorney General	Ex-Officio
HARRIET E. MILLER, Supt. of Public Instruction	Ex-Officio Sec.
MRS. G. E. CHAMBERS, 1960	Cut Bank
MERRITT N. WARDEN, 1961	Kalispell
EMMET J. RILEY, 1962	Butte
EARL L. HALL, 1963	Great Falls
GEORGE N. LUND, 1964	Reserve
MRS. F. H. PETRO, 1965	Miles City
BOYNTON G. PAIGE, 1966	Phillipsburg
E. A. DYE, 1967	Helena

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 Nursery
The School of Forestry	The Lubrecht Experimental Forest
The School of Journalism	The Division of Public Service
The School of Music	The Montana Cooperative Wildlife Research Unit
The School of Business Administration	The University Press
The School of Education	
The College of Fine Arts	
The Summer College	
The Graduate School	

Harry K. Newburn, President-elect
Gordon B. Castle, Acting President

MONTANA STATE COLLEGE, BOZEMAN

Established February 16, 1893, and consisting of

The Division of Agriculture	The Huntley Branch Station (Huntley)
The Division of Engineering	The Northern Montana Branch Station (Havre)
The Division of Household and Applied Arts	The U. S. Range Station (Miles City)
The Division of Science	The Northwestern Branch Station (Creston)
The Division of Education	The Engineering Experiment Station
The School of Nursing	The Agricultural Extension Service
The Agricultural Experiment Station	The Agricultural Short Course
The Montana Grain Inspection Laboratory	The Public Service Division
The Montana Wool Laboratory	The Summer Quarter
The Central Montana Branch Station (Moccasin)	The Graduate Division
The Eastern Branch Station (Sidney)	
The Horticulture Branch Station (Corvallis)	

R. R. Renne, President

MONTANA SCHOOL OF MINES, BUTTE

Established February 17, 1893, and consisting of

The Course in Mining Engineering	The Course in Mineral Dressing
The Bureau of Mines and Geology	The Course in Metallurgical Engineering
The Course in Petroleum Engineering	The Course in Geological Engineering
The Course in Ceramic Engineering	The Graduate School
	The Summer Field Courses

Edwin G. Koch, President

WESTERN MONTANA COLLEGE OF EDUCATION, DILLON

Established February 23, 1893, and consisting of

The Two-year Course in Teacher Education	The Two-Year General College Course
The Four-year Course in Teacher Education (Elementary and Secondary)	The Two-year Course in Business Education
The Teachers' Service Division	The Graduate Division
	The Summer Quarter

James E. Short, President

EASTERN MONTANA COLLEGE OF EDUCATION, BILLINGS

Established March 12, 1925, and consisting of

The Two-year Curriculum in Teacher Education	The Two-year and One-year Pre-professional Curricula
The Four-year Curriculum in Teacher Education—Elementary and Secondary	The Two-year Liberal Arts Curricula
The Graduate Division	The Two-year Basic Curricular Course
The Summer Quarter	

Herbert L. Steele, President

NORTHERN MONTANA COLLEGE, HAVRE

Established March 8, 1913, and consisting of

The Two-year Liberal Arts, Vocational, Technical, and Pre-Professional Courses	The Four-year Course in Education
The Three-year Course in Medical Secretaryship	The Summer Quarter

L. O. Brockmann, President

MONTANA STATE UNIVERSITY

CALENDAR 1959 - 1960

1959

AUTUMN QUARTER

September 20-26, Sunday through Saturday	Orientation Week and Registration
September 23-25, Wednesday through Friday	Registration of former students
September 28, Monday	Instruction Begins
November 11, Wednesday	Veterans Day, a Holiday
November 26, Thursday	Thanksgiving Day, a Holiday
December 14-18, Monday through Friday	Examinations
December 18, 5:20 p.m.	Autumn Quarter Ends Christmas Recess Begins

1960

WINTER QUARTER

January 4-5, Monday and Tuesday	Registration
January 6, Wednesday	Instruction Begins
February 17, Wednesday	Charter Day
March 14-18, Monday through Friday	Examinations
March 18, 5:20 p.m.	Winter Quarter Ends Spring Recess Begins

SPRING QUARTER

March 28-29, Monday and Tuesday	Registration
March 30, Wednesday	Instruction Begins
May 20-21, Friday and Saturday	Interscholastic Meet
May 30, Monday	Memorial Day, a Holiday
June 6, Monday	Commencement
June 6-10, Monday through Friday	Examinations
June 10, 5:20 p.m.	Spring Quarter Ends

SUMMER SESSION

June 13, Monday (10 weeks and first term)	Registration
June 14, Tuesday	Instruction Begins
July 4, Monday	Independence Day, a Holiday
July 18, Monday	Second Term Begins
August 19, Friday	Session Ends

AUTUMN QUARTER

September 18-24, Sunday through Saturday	Orientation Week and Registration
September 21-23, Wednesday through Friday	Registration of Former Students
September 26, Monday	Instruction Begins
November 11, Friday	Veterans' Day, a Holiday
November 24, Thursday	Thanksgiving Day, a Holiday
December 12-16, Monday through Friday	Examinations
December 16, 5:20 p.m.	Autumn Quarter Ends Christmas Recess Begins

LAW CALENDAR 1959 - 60

AUTUMN SEMESTER 1959

September 21-23, Monday through Wednesday	Registration and Orientation of New Law Students (Including Transfer Students from other Schools)
September 23, Wednesday	Registration of Upperclass Law Students
September 24, Thursday	Classes begin at 8:00 a.m.
November 11, Veterans Day	No classes
November 26, Thursday	Thanksgiving Day (no classes)
December 19, Saturday	Christmas Vacation begins after last class
January 4, 1960	Classes resume at 8:00 a.m.
January 6-9, Wednesday through Friday	Pre-registration
January 25-30, Monday through Saturday	Semester Examinations

SPRING SEMESTER 1960

February 3, Wednesday	Registration for Spring Semester
February 4, Thursday	Classes begin at 8:00 a.m.
March 19, Saturday	Spring vacation begins after last class
March 28, Monday	Classes resume at 8:00 a.m.
April 20-22, Wednesday through Friday	Pre-registration
May 25-31, Wednesday through Tuesday	Semester Examinations
June 6, Monday	Commencement

AUTUMN SEMESTER 1960

September 19-21, Monday through Wednesday	Registration and Orientation of New Law Students (Including Transfer Students from other Schools)
September 21, Wednesday	Registration of Upperclass Law Students
September 22	Classes begin at 8:00 a.m.
November 11, Friday, Veterans Day	no classes
November 24, Thursday	Thanksgiving Day (no classes)
December 17, Saturday	Christmas vacation begins after last class
January 3, Tuesday	Classes resume at 8:00 a.m.
January 4-6, Wednesday through Saturday	Pre-registration
January 23-28, Monday through Saturday	Semester Examinations

OFFICIAL DIRECTORY, 1959 - 1960

EXECUTIVE BOARD

THEODORE JACOBS, Missoula
MRS. THOMAS E. MULRONEY, Missoula
ALEX M. STEPANZOFF, Missoula

ADMINISTRATIVE OFFICERS

HARRY K. NEWBURN, Ph.D., L.H.D. (hon.), President-elect
(appointment effective July 1, 1959)
GORDON B. CASTLE, Ph.D., Acting President
HAROLD CHATLAND, Ph.D., Academic Vice President (on leave
February - June, 1959)
EARL C. LORY, Ph.D., Acting Academic Vice President and Acting
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ROBERT T. TURNER, Ph.D., Dean of the College of Arts and Sciences
LUTHER A. RICHMAN, D.Mus. (honorary), D.Ed., Dean of the Col-
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ALBERT T. HELBING, Ph.D., Acting Dean of the School of Business
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ROBERT E. SULLIVAN, LL.B., Dean of the School of Law
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LEO SMITH, M.A., Registrar
E. A. ATKINSON, M.A., Director of the Summer Session
HOMER ANDERSON, M.A., Director, Division of Public Service
KATHLEEN CAMPBELL, M.S., Librarian

THE FACULTY

BOTANY

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

SCHOOL OF BUSINESS ADMINISTRATION

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

JOHNSON, MAXINE (Mrs.), M.A., Research Associate, Bureau of
Business & Economic Research; Instructor

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

CHEMISTRY

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

ECONOMICS

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

SCHOOL OF EDUCATION

AMES, WALTER R., Ph.D., Professor Emeritus
BALDERSTONE, HOWARD, Ed.D., Associate Professor
CARLETON, LINUS J., Ed.D., Dean; Professor
DARLING, RICHARD L., M.A.L.S., Assistant Professor
GEBHART, JAMES W., M.S., Assistant Professor
GORMAN, ROBERT E., Ed.D., Director, Counseling and Placement;
Associate Professor
HANSON, FRANCES F., M.A., Assistant Professor
JAY, ROBERT H., M.Ed., Assistant Professor
KNAPP HENRY W., Ph.D., Assistant Professor
LOTTICK, KENNETH V., Ed.D., Associate Professor
MADDOCK, WILLIAM E., M.A., Professor Emeritus
MATTELL, CHARLES R., M.Ed., Instructor
MILLIS, GEORGE H., Ed.D., Assistant Professor
MUNRO, JAMES J. R., Ed.D., Assistant Professor

SLETTEN, VERNON O., Ed.D., Professor
 SMITH, LEO, M.A., Registrar; Professor
 WATSON, FRANK J., M.A., Assistant Professor
 WHITE, ELAINE, M.A., Executive Secretary

ENGLISH

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

THE COLLEGE OF FINE ARTS

ART

ARNOLD, ADEN F., M.A., Professor
 AUTIO, A. RUDY, M.F.A., Assistant Professor
 DEW, JAMES E., M.A., Associate Professor
 HOOK, WALTER, M.A., Associate Professor
 TURK, RUDY H., M.A., Instructor

BALLET

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

DRAMA

BROWN, FIRMAN H., M.A., Assistant Professor
 ZENDER, WALTER J., M.A., Instructor

SCHOOL OF MUSIC

ANDRIE, EUGENE, M.A., Associate Professor
 BARENDSEN, PATRICIA, M.Mus., Instructor
 CHILDS, GORDON, M.A., Instructor
 DOTY, GERALD H., M.Mus., Visiting Professor
 EVERSELE, JAMES, M.Mus., Instructor
 EVERSELE, SYLVIA (Mrs.), M.Mus., Assistant (part time)
 GRAY, J. JUSTIN, M.Mus., Associate Professor (on leave 1958-59)
 HARLAN, MONAS, M.Mus., Associate Professor
 HUMMEL, J. GEORGE, M.A., Assistant Professor

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

FOREIGN LANGUAGES

BERKOFF, DMITRY N., Lecturer (part time)
 BISCHOFF, PAUL A., M.A., Professor Emeritus
 BROWN, SUZANNE (Mrs.), B.A., Lecturer (part time)
 BURGESS, ROBERT M., Ph.D., Professor
 CANNADAY, ROBERT W., JR., Ph.D., Assistant Professor (Resigned
 December 31, 1958)
 CLARK, WESLEY P., Ph.D., Professor Emeritus; Dean Emeritus of
 the Graduate School
 EPHRON, MARGUERITE H. (Mrs.), M.A., Assistant Professor
 HOFFMAN, RUDOLPH O., M.A., Professor Emeritus
 JARDINE, LOUIS T., M.A., Instructor
 LAPIKEN, PETER P., Ph.D., Assistant Professor
 MONTGOMERY, RUBY (Mrs.), M.A., Lecturer (part time)
 NONNENMACHER, PATRICIA J. (Mrs.), M.A., Instructor
 ORTISI, DOMENICO, Ph.D., Assistant Professor
 POWELL, WARD H., Ph.D., Assistant Professor
 RIOUX, ROBERT N., Docteur de l'Universite de Paris (Lettres),
 Assistant Professor
 SHEPPARD, DOUGLAS C., Ph.D., Assistant Professor
 SHOEMAKER, THEODORE H., Ph.D., Associate Professor
 SORENSON, THORA, Ph.D., Professor
 WEISBERG, FLORA B. (Mrs.), B.A., Assistant Professor Emeritus

SCHOOL OF FORESTRY

BOLLE, ARNOLD W., M.P.A., Associate Professor
 CLARK, F. G., M.S.F., Professor Emeritus
 COX, GENE S., Ph.D., Associate Professor
 CRAIGHEAD, JOHN J., Ph.D., Professor; Leader, Montana Wildlife
 Research Unit
 DYSON, PETER J., M.S.F., Instructor
 FAUROT, JAMES L., M.F., Assistant Professor
 GERLACH, FREDERICK L., M.F., Instructor
 HOST, JOHN R., M.F., Assistant Professor
 HOWELL, O. B., M.S., Assistant Professor
 KRIER, JOHN P., Ph.D., Associate Professor
 LABER, ALFRED W., B.S., Instructor
 MORRIS, MELVIN S., M.S., Professor
 PIERCE, WILLIAM R., M.F., Assistant Professor
 SKOK, RICHARD, M.F., Assistant Professor
 STEELE, ROBERT W., M.F., Assistant Professor
 TABER, RICHARD D., Ph.D., Associate Professor
 von DEICHMANN, VOLLRAT, Ph.D., Assistant Professor
 WILLIAMS, ROSS A., M.F., Dean; Professor; Director of Montana
 Forest and Conservation Experiment Station

4—OFFICIAL DIRECTORY

GEOGRAPHY

BEATY, CHESTER B., M.A., Instructor
BEYER, JACQUELYN, Ph.D., Assistant Professor (on leave 1958-59)
BUCHANAN, RONALD H., Ph.D., Assistant Professor
SHAUDYS, VINCENT K., Ph.D., Assistant Professor (on leave 1958-59)
THOMAS, MORGAN, Ph.D., Associate Professor

GEOLOGY

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

HEALTH AND PHYSICAL EDUCATION

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

INTERCOLLEGIATE ATHLETICS

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

HISTORY AND POLITICAL SCIENCE

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

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

HOME ECONOMICS

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

SCHOOL OF JOURNALISM

BLUMBERG, NATHAN B., Ph.D., Dean; Professor
BUE, OLAF J., M.S.J., Professor
COGSWELL, ANDREW C., M.A., Dean of Students; Professor
DUGAN, EDWARD B., M.A., Professor
GARVER, RICHARD A., Ph.D., Assistant Professor
JOHNSON, DOROTHY M., B.A., Assistant Professor (part time)
JORGENSEN, ERLING S., Ph.D., Associate Professor; Director, Radio and Television Studios
SOTH, LAUREN K., M.S., Visiting Professor (Spring Quarter)
WARING, HOUSTOUN, Visiting Professor (Autumn Quarter)
YU, FREDERICK TEH-CHI, Ph.D., Associate Professor (on leave 1958-59)

SCHOOL OF LAW

BARROWS, RICHARD, LL.B., Assistant Professor; Librarian
BRIGGS, EDWIN W., LL.M., Professor
COTTER, JOHN F., LL.B., Visiting Professor (Spring Semester 1959)
CROMWELL, GARDNER, S.J.D., Associate Professor
FOLSOM, GWENDOLYN, M.A., Research Assistant and Secretary
KIMBALL, EDWARD L., LL.B., Assistant Professor
LEAPHART, CHARLES W., S.J.D., Dean Emeritus; Professor Emeritus
LOHN, SHERMAN V., LL.M., Assistant Professor (part time)
MASON, DAVID R., S.J.D., Professor
RUSOFF, LESTER R., LL.M., Associate Professor
SMITH, RUSSELL E., LL.B., Assistant Professor (part time)
STONE, ALBERT W., LL.B., Associate Professor
SULLIVAN, ROBERT E., LL.B., Dean; Professor
TOELLE, J. HOWARD, LL.M., Professor Emeritus

MATHEMATICS

BALLARD, WILLIAM R., Ph.D., Assistant Professor
CHATLAND, HAROLD, Ph.D., Professor; Academic Vice President (on leave February - June, 1959)
COWELL, WAYNE R., Ph.D., Assistant Professor
HASHISAKI, JOSEPH, Ph.D., Associate Professor; Assistant to the Dean of the Faculty

MERRILL, A. S., Ph.D., Professor Emeritus; Vice President Emeritus
 MYERS, VERA T. (Mrs.), M.A., Lecturer (part time)
 MYERS, WILLIAM M., JR., Ph.D., Associate Professor
 OSTROM, THEODORE G., Ph.D., Professor
 PETERSON, JOHN A., M.A., Instructor
 REINHARDT, HOWARD E., M.A., Assistant Professor
 SCHMIDT, WOLFGANG, Ph.D., Assistant Professor
 SIMONS, CHARLES R., B.S., Assistant (part time)
 YOUNG, FREDERICK H., Ph.D., Associate Professor

MICROBIOLOGY AND PUBLIC HEALTH

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

SCHOOL OF PHARMACY

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

PHILOSOPHY

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

PHYSICS

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

PSYCHOLOGY

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

NOBLE, CLYDE E., Ph.D., Associate Professor
 SAPPENFIELD, BERT R., Ph.D., Professor
 STRAUGHAN, JAMES H., Ph.D., Assistant Professor (on leave 1958-59)
 THYSELL, RICHARD V., B.A., Assistant

AFFILIATED SCHOOL OF RELIGION

CROUCH, WILLIAM, B.D., Campus Minister (Instructor) (half time)
 FERM, DEANE W., Ph.D., Associate Professor; Director
 JOHNSON, GLENN, B.Th., B.D., Campus Minister (Instructor)
 TATSUYAMA, TOSHIMI, Th.D., Assistant Professor

RESERVE OFFICERS TRAINING CORPS

AIR SCIENCE

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

MILITARY SCIENCE (ARMY)

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

SOCIOLOGY, ANTHROPOLOGY, SOCIAL WELFARE

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

SPEECH

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

ZOOLOGY

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

6—OFFICIAL DIRECTORY

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

SERVICES

LIBRARY

CAMPBELL, KATHLEEN, M.S., Librarian (Professor)
DAVIS, JEAN (Mrs.), M.A., Reference Librarian (Assistant Professor)
DeLAND, MARY F. (Mrs.), B.S.L.S., Catalog Librarian (Assistant Professor)
FISCHER, ROBERT E., M.S. in L.S., Assistant Librarian; Acquisitions Librarian (Assistant Professor)
MIDGETT, ADELAINE S. (Mrs.), B.A., Assistant, Catalog Department (Instructor)
NELSON, RITA (Mrs.), B.A., Assistant Acquisitions Librarian (Assistant Professor) (part time)
SPEER, LUCILE E., M.A., Documents and Serials Librarian (Professor)
WHITE, M. CATHERINE, M.A., Assistant Librarian and Reference Librarian Emeritus (Professor Emeritus)

BUREAU OF BUSINESS AND ECONOMIC RESEARCH

CHAMBERS, EDWARD J., Ph.D., Associate Director; Associate Professor, Business Administration
JOHNSON, MAXINE C. (Mrs.), M.A., Research Associate; Instructor, Business Administration
SHAUDYS, JEAN H. (Mrs.), Ph.D., Research Associate (half time) (on leave 1958-59)
SHEARER, HENRY K., Ph.D., Director; Associate Professor, Economics

BUREAU OF GOVERNMENT

WALDRON, ELLIS L., Ph.D., Acting Director; Dean, Graduate School; Professor, Political Science

BIOLOGICAL STATION

HARVEY, LEROY H., Ph.D., Acting Director; Professor, Botany; Curator of the Herbarium

Staff of Botany and Zoology Departments

FOREST AND CONSERVATION EXPERIMENT STATION

BALDWIN, DON, B.S.F., Superintendent of Nursery and Supervisor of School Forest

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

WILLIAMS, ROSS A., M.F., Director; Dean and Professor, Forestry Staff of Forestry School

WILDLIFE UNIT

CRAIGHEAD, JOHN J., Ph.D., Leader, Montana Cooperative Wildlife Research Unit; Professor, Forestry and Zoology

PENGELLY, W. LESLIE, M.S., Head, Conservation Education Extension (Assistant Professor)

TABER, RICHARD D., Ph.D., Assistant Leader, Montana Cooperative Wildlife Research Unit; Associate Professor, Forestry

WRIGHT, PHILIP L., Ph.D., Assistant Leader, Montana Cooperative Wildlife Research Unit; Professor, Zoology

PUBLIC SERVICE DIVISION

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

RESIDENCE HALLS

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

FOOD SERVICE

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

MISCELLANEOUS ADMINISTRATION

ARMSBY, LUCILLE JAMESON (Mrs.), B.A., Secretary to the President (Assistant Professor)
BADGLEY, E. KIRK, B.A., Controller (Professor)
BOURKE, MARCUS J., Assistant, Grants and Endowments (Resigned January 31, 1959)
CLARK, S. KENDRICK, B.A., Auditor, Business Office
FERGUSON, MARY ELROD (Mrs.), M.A., Assistant Director Emeritus, Museum and Northwest Historical Collection (Assistant Professor Emeritus)
GORMAN, ROBERT E., Ed.D., Director, Counseling and Placement Service; Associate Professor, Education
HANSEN, ROBERT, M.D., Director, Health Service (part time)
KRIEGER, FREDERICK, B.S., Superintendent, Buildings and Grounds
LOMMASSON, EMMA B. (Mrs.), M.A., Assistant Registrar (Instructor)
MARTELL, EARL W., B.A., Director, Student Activity Facilities (Instructor)
MONAHAN, THOMAS F., M.A., Assistant to the Dean of Students
MURPHY, CALVIN L., B.A., Assistant Controller, Business Office
RYAN, JACK, B.A., Distribution Manager, University Press; Director, News Service
STEWART, GERTRUDE, B.A., Housing and Food Service Accountant
SWEARINGEN, T. G., B.A., Director, Planning and Construction Office

MONTANA STATE UNIVERSITY

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

Missoula is a residential city of approximately 33,000 about 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 trans-continental railroads, bus lines operating on the main east-west north-south U. S. highways, and by air.

ACCREDITATION

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

SUPPORT AND ENDOWMENT

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

CONTROL AND ADMINISTRATION

Subject to the Constitution and statutes, general control and supervision of all Montana state institutions of higher education are vested in the eleven-member State Board of Education. There is also a local three-member Executive Board for each institution. The immediate administration of each institution is vested in a president.

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

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

CAMPUS AND FACILITIES

The main campus spreads over 125 acres; and there are extensive adjuncts such as the Golf Course (155 acres), Biological Station (160 acres), the Forest Nursery (200 acres), and the Experimental Forest (22,000 acres). The physical plant includes twenty-eight brick and masonry buildings of which five were completed in 1953 as well as numerous other structures for storage and other purposes.

Special instructional facilities also include the Biological Station, 90 miles north of the campus on Flathead Lake with buildings for housing and research; the Forest Nursery and the Experimental Forest near the campus; the Wildlife Research Unit; and the University Press. 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 more than 330,000 volumes in the library building and in the law school library, receives over 1,500 periodicals, and has a collection of more than 32,000 maps.

THE UNIVERSITY BIOLOGICAL STATION is located

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

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

During the summer, field courses and research in Botany and Zoology are offered for upper division and graduate students. By virtue of the station's location, there is a great variety of opportunity for research.

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

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

THE BUREAU OF BUSINESS AND ECONOMIC RESEARCH is set up to provide Montana businessmen with the types of statistics useful to them in conducting their businesses; to disseminate information of general interest on the economic and social aspects of the state; and to engage in studies in the areas of economic and other social sciences which show promise of making contributions to knowledge, or to the development of methods of analysis, regardless of whether such studies are directly related to the state.

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

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

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

"To study the growth and the utilization of timber. . . . To determine the relationship between the forest and water conservation and waterflow regulation; the forest and pasturage for domestic livestock and wild life; the forest and recreation and those other direct and indirect benefits that may be secured by the maintenance of or the establishment of forest or woodlands . . . To study and develop the establishment of windbreaks, shelter belts and woodlots on the farms of the State . . . to study logging, lumbering and milling operations and other operations dealing with the products of forest soils with special reference to their improvement . . ."

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

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

The station is supported by funds appropriated by the Congress and the state of Montana, income from the sale of forest products, 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 of the U. S. Department of Interior, The Wildlife Management Institute of Washington, D. C., and Montana State University.

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

The Montana Unit through its graduate research fellowship program investigates wildlife problems approved by the Unit Coordinating Committee in order to make it possible for the Commission to improve management of the wildlife resources for the benefit of the citizens of Montana. At the same time this research work carried on under the supervision of the Unit Leader and University Faculty contributes to the training of graduate students in the fields of Wildlife Management and Wildlife Technology.

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

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

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

THE TYPOGRAPHICAL LABORATORY AND UNIVERSITY PRESS serves both as a laboratory operation for instruction in the School of Journalism and 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 PUBLIC SERVICE DIVISION is the administrative agency through which the University carries on its off-campus activities and services. In it are the departments of Home Study, Evening classes, and Extension classes.

In addition the division works directly with high schools, planning visitation, college career days, scholarship programs and campus activities.

The division works directly with communities and groups in community historical pageant-dramas, community surveys, institutes, forums, etc.

The division cooperates in staging conferences, institutes and short courses. A lecture and concert bureau is maintained by the division for organizations desiring speakers and programs from the campus.

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

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

SUMMER COLLEGE. The Summer Session of ten weeks is divided into two five-week terms. Students may attend either five-week term or the full ten-week session. The 1960 Summer Session will open June 13 and close August 19; the first five-week term, June 13 to July 15; the second five-week term, July 18 to August 19.

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

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

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

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

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

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

Full information regarding the Summer Session may be obtained from The Registrar or the Summer College office.

THE GRADUATE SCHOOL

The following advanced degrees are conferred by the University:

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

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

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

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

Master of Education
Master of Forestry
Master of Music—Major in Applied Music, Composition, Music Education
Doctor of Philosophy—Geology
Doctor of Education

GENERAL REQUIREMENTS. General University regulations relating to graduate work and the award of graduate degrees are administered in the Graduate School. Special requirements for particular degrees and programs are listed under the curricula of the departments and schools.

ADMISSION TO THE GRADUATE SCHOOL. A student who is a graduate of an accredited college or university may apply for admission to the Graduate School. The undergraduate preparation must be equivalent to the general requirements for the Bachelor's degree at Montana State University.

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

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

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

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

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

Bacteriology, Botany, Business Administration, Chemistry, Drama, Economics, Education, English, French, Geography, Geology, Health and Physical Education, History, Journalism, Mathematics, Music, Philosophy, Physics, Political Science, Psychology, Sociology, Spanish, Speech, Wildlife Technology and Zoology.

Registration for the Graduate Record Examination can be accomplished by payment of the examination fee at the Business Office on or before the second Friday of the quarter in which the examination will be taken. The fee receipt card retained by 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 normally be expected at the end of the fifth week of the autumn and spring quarters and at the end of the fourth week of the summer session.

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

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

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

GRADES. An average of B must be maintained in all courses taken for graduate credit. Courses in which grades below C have been received are not accepted for degree requirements 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.

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

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

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

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

Correspondence courses will not be accepted for graduate credit.

THE MASTER OF ARTS AND MASTER OF SCIENCE DEGREES

To receive either of these degrees the candidate must present evidence of intensive study and investigation in his field of special interest. A minimum of two-thirds of the 45 credits required for the Master of Arts or Master of Science degree must be in the major field. The remainder of the work may be in studies approved by his adviser and by the Dean of the Graduate School. A satisfactory thesis must be presented for either of these degrees.

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

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

TIME LIMIT. All requirements for the Master's degree must be completed within a period of eight years, except that a maximum of ten 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. Residence requirements may not be transferred for the Master's degree except by students from Montana State College, who may transfer a maximum of 15 course credits and ten weeks of residence if such transfer is approved by the adviser and by the Dean of the Graduate School.

FOREIGN LANGUAGE REQUIREMENT. A reading knowledge of a language other than the student's native language is required of all candidates for the Master of Arts degree in the College of Arts and Sciences and for the Master of Arts in Art and the Master of Arts in Journalism. Candidates for the Master of Science degree in those departments of the College of Arts and Sciences which require a foreign language for the Bachelor's degree must meet this requirement for the Master's degree. The language requirement may be met in any one of the ways outlined in the undergraduate Requirements for Graduation. Proficient use of the English language is required of all candidates for Masters' degrees.

GRADUATE PROGRAM. During the first quarter of graduate training the student must submit to the chairman of the major department or school a tentative program of courses to be taken throughout his graduate degree training. A copy of this program must be submitted to the Dean of the Graduate School.

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

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

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

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

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

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

SPECIAL PROGRAMS

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

SPECIAL REQUIREMENTS FOR THE MASTER OF ARTS IN GUIDANCE AND COUNSELING. In addition to the general requirements for admission to the Graduate School, the following special requirements must be met: Psych 230, Educ 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, 360, or 361; Sociology 402 and 405; Educ 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.

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

In addition to the general requirements for admission to the Graduate School the candidate must have a teaching certificate with an undergraduate major or teaching major in the field in which the graduate degree is sought, and ap-

proval by a committee composed of two staff members from the major field and one staff member from the School of Education. This committee, appointed by the Dean of the Graduate School, will also advise the student in the program of study. For the major in Biological Sciences it will comprise one member from Botany, one from Zoology and one from Education; for the major in Mathematics it will comprise two members from Mathematics and one from Education.

Specific Requirements for the degree include three options:

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

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

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

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

THE DOCTOR OF PHILOSOPHY DEGREE

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

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

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

TRANSFER OF CREDIT. Credit for satisfactory graduate study may be transferred from an accepted graduate institution and applied toward the fulfillment of requirements for the Doctor's degree, but only 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. 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 competence in independent research. The dissertation must be an original contribution to knowledge; it must be presented in acceptable literary form and be of a quality to warrant eventual publication. Individual departments may, at their discretion, require publication.

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

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

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

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

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

THE DEGREE OF DOCTOR OF EDUCATION

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

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

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

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

COURSE REQUIREMENTS, DISTRIBUTION, AND QUALITY OF WORK. The candidate will submit a minimum of 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 Education 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.

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

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

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

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

REQUIREMENTS FOR ADMISSION

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

GENERAL ADMISSION. Applicants for admission must be of good moral character. Veterans of any branch of the

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United States Armed Forces should present a discharge marked other than "dishonorable."

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

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

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

CONDITIONAL ADMISSION. A 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.

ADMISSION AS SPECIAL STUDENTS. Persons 21 years of age or over who are not graduates of high schools, who cannot offer all the requirements for admission, and who are not candidates for degrees may be admitted as special students upon passing general aptitude and English placement tests and the submission of satisfactory evidence that they are prepared to pursue successfully the courses they desire. Such 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. Students permitted to select their subjects without reference to the requirements of any prescribed course of study may register as unclassified students.

REGISTRATION AND GENERAL REGULATIONS

Time for registration is set aside during Orientation week. Two days at the beginning of other quarters are also used for this purpose. A student's registration is subject to the approval of an appointed faculty adviser until choice of major field of study has been made; after this choice,

the head (or his delegate) of the department or school in which the curriculum is offered becomes the adviser.

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

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

MAXIMUM CREDIT LOAD. Except for students registering in an approved curriculum, the maximum credit load per quarter is as follows: (1) For Freshman, fifteen credits plus physical education and ROTC as required; (2) For Sophomores, sixteen credits plus physical education and ROTC as required; (3) Juniors and Seniors may register for seventeen credits except that students with approximately B averages may be permitted by their advisers to register for eighteen credits.

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

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

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

WITHDRAWALS FROM THE UNIVERSITY. Students who withdraw from the University during a quarter are required to fill out withdrawal forms in the Registrar's Office. If this is not done the student will not be entitled to certification of honorable dismissal. When withdrawal forms signed by the Dean or Associate Dean of Students are filed before the end of the ninth week of a quarter, grades of "W" are assigned. After the ninth week, the student who withdraws receives a grade, usually incomplete.

REPETITION OF A COURSE. When a course in which a student has previously received a grade is repeated, the first grade 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 a quarter. The student cannot obtain a larger number of credits than he is registered for, but a smaller number may be completed and credit obtained with the instructor's approval.

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

DEGREES AND MAJORS

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

COLLEGE OF ARTS AND SCIENCES

Bachelor of Arts, with majors in:

Anthropology	Liberal Arts
Bacteriology	Library Science
Biological Science	Mathematics
Botany	Philosophy
Chemistry	Physical Science
Economics	Physics
Economics - Political Science	Political Science
Economics & Sociology	Political Science—Economics
English	Political Science & History
French	Pre-Medical Sciences
Geography	Psychology
Geology	Radio & Television
German	Secretarial - Home Arts
Health & Physical Education	Social Welfare
History	Sociology
History & Political Science	Sociology & Economics
Home Economics	Spanish
Latin	Speech
Law	Zoology

Bachelor of Science, with majors in:

Air Science	Home Economics
Health & Physical Education	Military Science

Bachelor of Science in Medical Technology

Bachelor of Science in Secretarial - Home Arts

Bachelor of Science in Wildlife Technology

COLLEGE OF FINE ARTS

Bachelor of Arts, with majors in:

Art
Drama
Music

Bachelor of Music, with majors in:

Applied Music
Music Education
Theory & Composition

PROFESSIONAL SCHOOLS

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

GRADING SYSTEM

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

A—Work of the best grade; B—work better than average; C—average work; D—work below average, but barely passing; F—failure; +—pass without 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 thesis and law courses the letter "n", not accompanied by a grade, is assigned at the end of each quarter to indicate that the student is entitled to continue the course; upon completing the course, a grade is given which applies to the whole course.

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

D. In a subject in which an "incomplete" grade has been received, grade points are counted only after this incomplete has been removed.

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

REQUIREMENTS FOR GRADUATION

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

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

CREDITS REQUIRED FOR A DEGREE. The work in Montana State University is measured in terms of credit. One credit represents three hours of time per week for one quarter of twelve weeks. The time required for each credit may be distributed in any combination among preparation, recitation, lecture, or laboratory work. A total of 180 credits plus six credits in required physical education is necessary in all courses for graduation with a bachelor's degree except that more are required in Forestry, Law and Pharmacy. Candidates for the degree of Bachelor of Science in Forestry must complete 192 credits in addition to regular requirements in Physical Education and ROTC. Candidates for the degree of Bachelor of Laws must complete three years of Law totaling 126 credits in addition to the entrance requirements of the School of Law. Candidates for the degree of Bachelor of Science in Pharmacy must complete a five year course. Candidates for the Bachelor of Arts degree in the College of Arts and Sciences must complete 93 credits in that college. This includes credits in Art and Drama.

CREDITS REQUIRED FOR A MAJOR. Students may be required to complete from 45 to 60 credits in the chosen field. For education majors, the number of credits is from 40 to 60. In curricula allowing 5 credits of a survey course to count as part of major requirements, the total maximum of 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.

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 nor 6 credits in ensemble music may be counted towards graduation.

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

Only students majoring in Business Administration, those taking a teaching major or minor in Business Administration or those following the curricula in Secretarial-Home Arts are allowed to present more than 19 credits earned in Business Administration 180-181-182, 183, 184-185-186, 187-188-189 and 190-191.

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CREDIT BY EXAMINATION. Under certain circumstances, a student may challenge and receive credit for a course in which he has not been regularly registered. The challenge system does not apply to law or pre-law courses.

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

A student must have a 3-point grade average in all courses in which he has registered and an entering freshman must have a scholastic 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 only on a grade of A or B earned in an examination which must be at least in part written.

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

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

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

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

MINIMUM SCHOLASTIC REQUIREMENTS. Students whose work falls 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.

SPECIALIZATION. A student must select a major field of study before entering the junior year at the University. Usually the selection will be made earlier.

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

- (1) Physical Education, 6 quarters (6 credits) required of all freshmen and sophomore students unless excused for cause. Discharged veterans and students 27 or more years of age are excused from this requirement. All students are also required to pass the University swimming test.
- (2) ROTC, a total of 6 quarters (10 credits) required of all freshmen and sophomore men. It is mandatory that this work be accomplished during the first six quarters and cannot be deferred except by petition 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

Less than six months—None

Six months but less than 12 months—3 quarters
12 months or more—Full waiver

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

- (3) Freshman Composition English 104-105, 2 quarters (10 credits) or English 101-102-103, 3 quarters (9 credits). All students registering for the first time in either of these freshman composition courses take a placement examination; those who fail to demonstrate an acceptable college standard must take English 001 without credit before enrolling in English 104 or 101. Students who receive "A" in English 102 or 104 may substitute English 201 for 105 or 103.

GROUP REQUIREMENTS. All candidates for the bachelor's degree must present for graduation at least twelve credits from each of the groups I, II, and III following. Credits must be included from at least two sub-groups listed for groups I, II and III, except that General 131-132-133 INTRODUCTION TO BIOLOGICAL SCIENCES, and 151-152-153 INTRODUCTION TO THE HUMANITIES, will satisfy the requirements to groups I and III respectively.

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

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

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

In the School of Forestry, Group II requirement may be partially satisfied by Forestry 421, 5 cr. Five credits of Speech are accepted as part of the Group III requirement.

Elementary teachers may fulfill Group I requirements with General 125 PHYSICAL SCIENCE FOR TEACHERS, General 126 BIOLOGICAL SCIENCE FOR TEACHERS, and Mathematics 130 THEORY OF ARITHMETIC.

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

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

VETERANS' CREDIT. Upon application veterans may be granted credit for work completed in special service training courses in accordance with the recommendations of the American Council on Education, and not more than 12

“unassigned” credits at a rate of three credits for the first three months of service and one additional credit for each subsequent four months of service. Nine quarter credits are allowed for completion of the senior phase of the Marine Corps Platoon Leaders course.

RESIDENCE REQUIREMENTS. Students who transfer credits earned elsewhere and seek a degree from Montana State University must, in addition to meeting other requirements of the University, earn not less than 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.

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 guidebook.

SENIOR EXAMINATIONS FOR HONORS. A student who wishes to be graduated with honors or high honors must meet the following requirements: (1) For honors, in the beginning of his last quarter he must have an index of at least 3.1 for all credits registered for in his entire record as well as in the major field; (2) For high honors, at the beginning of his last quarter he must have an index of at least 3.5 for all credits registered for in his entire record as well as in the major field. A student who transfers credits earned elsewhere to this university must meet the scholastic index indicated on grades earned at Montana State University as well as on his entire record; (3) The student must take an examination, oral or written 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.

FINANCIAL OBLIGATIONS

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

Registration 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:

Registration	\$10.00
(Many Honor Scholarships entitle the holder to a waiver of the Registration and Incidental fees)	
Incidental (for laboratory supplies in all courses, locker fees, gymnasium towel service, diploma, etc.)	30.00
Building	10.00
Student Union Building	4.00
Student Activity	10.00
For support of activities sponsored by the Associated Students of Montana State University.	

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

Health Service	10.00
(Required of all students enrolled for class work.)	
	<hr/>
	\$74.00
General deposit (charges for loss, breakage, and fines deducted)	10.00
(This deposit, less charges, is refundable after graduation or when schooling is discontinued. Additional amounts will be billed if the balance becomes low)	
	<hr/>
Total, first quarter in attendance	\$84.00
Non-residents (out-of-state) pay, in addition to the fees listed above, per quarter (\$65.00 plus \$15.00 Non-resident Building fee)	\$80.00
(If registered for less than 7 credits, the Non-resident fee is based on a charge of \$10.00 per credit, plus a \$7.50 Non-resident Building fee. Minimum Non-resident fee for Limited Registrants is \$27.50, maximum is \$67.50.)	

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

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

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

LIMITED REGISTRANTS (students registered for less than seven credits): Registration Fee \$10.00; Incidental Fee \$15.00; General Deposit \$5.00; Building Fee \$5.00; Student Union Building \$2.00; Health Service \$10.00; Student Activity \$10.00 (optional). Non-residents pay (in addition to other fees stated here) \$10.00 per credit, plus a \$7.50 Non-resident Building fee (minimum of \$27.50, maximum of \$67.50). Students who are enrolled as regular students, who wish to drop to limited registrants, see statement under regular refund schedule.

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

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

GRADUATE STUDENTS pay the same fees as undergraduate students except that graduate students whose programs require expensive equipment, laboratory supplies and additional books may be required to pay a graduate laboratory-incidental fee not to exceed \$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. Also payable by students who registered during the prescribed period of registration but who failed to either pay their fees or obtain a deferment. (\$1.00 per day to a maximum of \$5.00.)

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DEFERMENT. In case of an emergency, the Controller is authorized to grant a limited extension of time on payment of fees. If approved, there will be a charge of \$1.00 for processing the deferment. Failure to meet payments as agreed, without an authorized extension of the deferment, will result in a penalty of \$1.00 per day to a maximum of \$5.00.

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

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

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

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

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

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

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

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

— WEEK OF INSTRUCTION—

REGULAR STUDENTS	First	Second	Third	Fourth
Registration (\$10.00)	None	None	None	None
Incidental (\$30.00)	75%	50%	50%	None
Building (\$10.00)	100%	50%	50%	None
Student Union Bldg. (\$4.00)	None	None	None	None
Student Activity (\$10.00)	100%	50%	50%	None
Health Service (\$10.00)	100%	50%	50%	None

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

Non-Resident Tuition (\$65.00)	80%	60%	40%	20%
Non-Resident Building fee	None	None	None	None
Applied Music	Refund based on a charge of \$1.75 per lesson for the number of weeks elapsed since the beginning of the quarter.			

REGULAR STUDENTS WHO DROP TO LIMITED REGISTRANTS

Registration	None	None	None	None
Incidental	\$11.25	\$7.50	\$7.50	None
Building	5.00	2.50	2.50	None
Student Union Building	None	None	None	None
Student Activity	10.00	5.00	5.00	None
Health Service	None	None	None	None
Non-Resident Tuition	Varies with number of credits.			
Non-Resident Building fee	None	None	None	None

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

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

RAILWAY FARE REFUND. In accordance with the provisions of Chapter 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 success, academic achievement, and experiences in the processes of democratic living. The Associate Dean has specific responsibility for all questions of social and academic welfare of women students, and the Dean similar responsibility for men.

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

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

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

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

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

The full-time student dispensary is staffed by physicians practicing in Missoula. Laboratory service, x-ray, and limited physical therapy are provided also. Polio and other preventive inoculations are provided at cost.

Consultations and house calls are covered by the health plan up to local scale fee schedules.

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

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

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

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

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

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

THE PLACEMENT SERVICE endeavors to assist University graduates in finding positions suited to their interests and training. The services are also extended to business and other organizations in search of University-trained personnel. The Placement Service also aids University graduates in later years respecting opportunities for which both a degree and experience are required. A registration fee of \$5.00 is charged for placement services.

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

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

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

RESIDENCE HALLS. Application forms and detailed information may be obtained by writing the Registrar's Office, Montana State University. A \$77 prepayment on board and room, which includes a \$10 deposit, must accompany each room application. If a room reservation is cancelled, notice in writing must be received by the Manager of Residence Halls on or before September 3 for fall quarter, December 9 for winter quarter, and March 10 for spring quarter, or the \$10 deposit, included in the prepayment, will be forfeited. Students who live in the residence halls normally are required to board in the Lodge.

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

Board for the quarter is \$141 and \$160 depending upon the length of the quarter. Board rates are calculated at \$1.90

per day. Room rates by the quarter, per person, are: One in a room, \$79; two in a room, \$60; multiple, \$48. Rates are subject to change.

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

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

THE WOMEN'S COOPERATIVE HOUSE provides an opportunity for women to gain experience in group living while reducing 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, Synadelphic House, 601 Daly Avenue, Missoula, Montana.

FRATERNITY AND SORORITY HOUSES. Nine national fraternities and six national sororities maintain their own residences under University supervision. Membership in fraternities and sororities is by invitation, but eligibility for pledging is based on satisfactory scholarship accomplished in high school, and for initiation, 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, games room, and food service. Bowling alleys, a year-round skating rink, and a swimming pool are also maintained by the Lodge management.

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

LOANS are available to qualified students in need of financial aid to complete their college work. Information about these may be obtained from the Office of the Dean of Students.

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

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

STUDENT STANDARDS AND AFFAIRS. Consistent with its aims and purposes, the University requires all its students to conform to the usual standards of society and law-abiding citizenship. Every organization affiliated with the University or using its name is required to conduct all its affairs in a manner creditable to the University. Organizations and individuals will be held to this principle

18—ORGANIZATION

Gambling is not permitted in University buildings or in University-approved housing.

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

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

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

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

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

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

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

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

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

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

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

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

All social functions of student organizations at which women are present are to be approved by and scheduled with the Associate Dean of Students.

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

ACTIVITIES

The University encourages a full and well-rounded program of activities designed to stimulate students' intellectual, vocational, and social interests. Among the types of student extra-curricular activities are student government, societies and clubs of students engaged in particular studies, professional and honorary organizations, athletic clubs or teams for men or women, student publications, musical organizations, church groups, and residence hall clubs.

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

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

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

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

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

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

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

ORGANIZATIONS

The entire student body is organized into one society known as the Associated Students of Montana State University. This organization, through appropriate committees and officers, has charge of matters of general concern, such as athletics, oratory, debate, and entertainment.

The Associated Women Students is an organization made up of all women students in the University. It has responsibilities pertaining to the student life of its members.

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

veloping high social standards among the members of the student body.

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

In addition to several small musical ensembles, there are the following large organizations: The University Choir, Choral Union, Choral Ensembles, 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 Company is a national military organization for advanced Army ROTC students devoted to increasing interest in military activities, establishing standards of leadership and devotion to duty, and the development of those qualities essential to the efficient officers of the Armed Services.

Arnold Air Society is a National Honorary Society for selected Advanced AFROTC students. The Society fosters interest in Air power and development of Air Force Leadership.

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

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

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

ORGANIZATION OF INSTRUCTION

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

COLLEGE OF ARTS AND SCIENCES

Bacteriology	Liberal Arts
Biological Sciences	Library Service
Botany	Mathematics
Chemistry	Medical Technology
Economics	Philosophy
English	Physical Sciences
Foreign Languages	Physics
French	Pre-Medical Sciences
German	Psychology
Greek	Radio and Television
Italian	Reserve Officers Training
Latin	Corps
Russian	Air Science
Spanish	Military Science (Army)
Geography	Secretarial-Home Arts
Geology	Sociology, Anthropology,
Health and Physical Education	Social Welfare
History and Political Science	Speech (Includes Speech Pathology and Audiology)
Home Economics	Wildlife 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
Secondary Education

THE COLLEGE OF FINE ARTS

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

SCHOOL OF FORESTRY

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

SCHOOL OF JOURNALISM

Advertising Training	News-Editorial
Community Journalism	Radio-Television
Magazine Training	

SCHOOL OF LAW

SCHOOL OF PHARMACY

AFFILIATED SCHOOL OF RELIGION

COURSE NUMBERING SYSTEM

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

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

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

Courses are listed under headings, FOR UNDERGRADUATES, FOR UNDERGRADUATES AND GRADUATES, or FOR GRADUATES. Courses listed under the first heading may not be taken for graduate credit even if the numbers are in the 300 or 400 series. Courses under the second heading may be taken for graduate credit if the student secures proper authorization from the Dean of the Graduate School. Courses under the last heading may be taken by graduate students only.

The University reserves the right to withdraw any course for which fewer than five students are enrolled before the opening of the course. Such courses may be given only in specific cases and with written approval of the President.

EXPLANATION OF SYMBOLS

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

106 (13), 104-105 (11ab), 101-102-103 (12abc) — Course numbers of one, two, and three quarter courses. Numbers in parenthesis were used before the summer of 1957. Unless otherwise stated, 104 is required before 105. 101 is required before 102, and 102 before 103.

1Q, 2Q, or 3Q—Follow course title, indicate length of the course in quarters.

A, W, S, Su—Quarters in which course given: Autumn, Winter, Spring, Summer, respectively.

5—Number following quarters in which course given is the number of credits per quarter allowed for the course.

V or V 1-3—Variable credit course. Variation may be shown by numbers following V.

R or R-8—Course may be taken more than once for credit; total credit allowed shown by number following the R.

(3-4)—Hours of lecture and laboratory required each week of the quarter; lecture is first figure, laboratory the second.

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

a/q—Course may be offered any quarter.

e/y—Course offered even numbered years only.

o/y—Course offered odd numbered years only.

=—Equal, or equivalent course.

c/i—Consent of instructor required.

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

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 guidebook, fifty credits in departmental courses are required for the Bachelor of Arts degree with a major in Anthropology. A foreign language is required. (See foreign language requirement in the general section of the Guidebook.)

At least 30 of the 50 major credits must be in anthropology courses, Sociology 101, 205, and 303 and Social Welfare 181 must be completed. Remaining courses for the major may be selected from any courses in the department. Religion 304, Geography 355 and Speech 318 may be counted toward a major in Anthropology.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

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

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

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

FOR UNDERGRADUATES AND GRADUATES

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

352 (139) **ARCHAEOLOGY OF MONTANA** 1Q S 3 e/y Prereq 152 or 153 or =, and c/i. The origins and distribution of aboriginal cultures in Montana and surrounding regions. Students are required to attend a minimum of three field trips in which actual archaeological sites will be excavated, and techniques demonstrated.

353 (180) **ARCHAEOLOGICAL SURVEY** Any quarter in which field parties are organized V 3-9 R-18 Prereq 152 or 153 or =. A field course in Montana Archaeology.

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

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

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

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

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

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

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

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

365 (151) **INDIANS OF MONTANA** 1Q W Su 3 Prereq 152 or 153 or 10 credits in Social Sciences, and c/i. The history and culture of the Indian tribes of Montana.

366 (181) **NORTHWEST ETHNOLOGY** Any quarter in which field parties are organized V 1-5 R-15 Prereq 152 or 153 or =. A field course. Indian tribes of Montana and related areas.

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

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

372 (171) CULTURE AND THEORY 1Q A 3 o/y Prereq 152 or 153 or =, and Soc 201. 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.

451 (190) ADVANCED PROBLEMS a/q V 1-2 R-6 Prereq 152 or 153 or =, and c/i.

452 MODERN INDIAN PROBLEMS 1Q A 3 Prereq 152 or 153 or =. Social and health problems, legislation, education, and economic conditions of Indians of the United States.

470-471-472 SELECTED TOPICS 3Q A W S 2 Prereq 10 credits in Anthropology. Enter any quarter. Selected problems in Anthropology.

FOR GRADUATES

551 (201) RESEARCH a/q V.
699 (299) THESIS a/q 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 judgement 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.

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

Graduates teach in 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 guidebook the following special requirements must be completed for the Bachelor of Arts degree with a major in Art: 55 or more credits including Art 123, 125-126, 231-232-233, 135 (6 cr), 139, 140 (9 cr), 151, 307, 450. (For teaching major or minor 307 is taken instead of 450.) The foreign language requirement listed earlier in the guidebook must be satisfied.

SPECIAL REQUIREMENTS FOR THE MASTER OF ARTS IN ART. In addition to the general requirements 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, 525 for painting major; 330 and 540 for ceramics majors; 335 and 540 for sculpture majors; 325 and 525 for design majors); five to 10 credits on a terminal project and/or thesis (Art 699); minimum of 10 credits in art electives outside 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 (23) DRAWING 3Q A W S 3, Su 2 or 4 R-9. Objective and expressive drawing, using varied methods and subject matter.

125-126 (25ab) COLOR AND DESIGN 2Q A W 3, Su 2 or 4. Creative design and use of color, theories, methods and problems.

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

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

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

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

139 (39) WATERCOLOR 1Q S 3, Su 2 or 4 Prereq 6 credits of 123. Offered by extension for 1 credit. Watercolor techniques and expressive use of subject matter.

140 (40) PAINTING 3Q A W S 3, Su 2 or 4 R-9. V when taught by extension. Prereq 6 credits of 123. Su prereq c/i. Techniques of oils and related media. Individual criticism of technique and expression.

151 (51) LIFE DRAWING 1Q S 3 R-9 Prereq 6 credits of 123. Expressive drawing from models. Anatomical construction.

160 LETTERING 1Q W 2. Pen and brush lettering and layout.

162 COMMERCIAL ART 2Q A S 2 Prereq 125. Objectives, techniques, and materials used in commercial work.

231-232-233 (31abc) 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.

FOR UNDERGRADUATES AND GRADUATES

303-304 (103ab) ELEMENTARY SCHOOL ART 2Q A W Su 3. (303) Art education at elementary school level; philosophy, history, theories, and practice in media. (304) Continued practice in media and materials used in public schools.

307 (107) METHODS OF TEACHING SECONDARY ART 1Q S Su. 3. Objectives, methods, materials and evaluations.

325 (125) ADVANCED DESIGN 3Q A W S V 1-6 R-12 Prereq 125-126. Advanced problems of a specialized nature.

330 ADVANCED CERAMICS 3Q A W S V 1-6 R-12 Prereq 4 cr of 129. Advanced problems in ceramic techniques.

334 ADVANCED PRINTING ARTS 3Q A W S V 1-6 R-12 Prereq 133-134. 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 (140) 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/i. History, theory, aesthetics of Western European painting during the Renaissance.

372 MODERN ART 1Q W 3 Prereq c/i. 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/i. American painting and aesthetic theories from the Columbian Age to the present day.

450 (150) SEMINAR 1Q a/q V 1-3 R-6 Prereq c/i. Theories and practices applicable to art as a profession or to the teaching of art.

FOR GRADUATES

525 SPECIAL PROBLEMS I 3Q A W S V R-15 Prereq c/i. Specialized advanced work in two dimensional media.

540 SPECIAL PROBLEMS II 3Q A W S V R-15 Prereq c/i. Specialized advanced work in three dimensional media.

550 SPECIAL PROBLEMS III 3Q A W S V R-15 Prereq c/i. Individual research in art history or art theories.

699 THESIS ON TERMINAL PROJECT a/q V R-15.



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

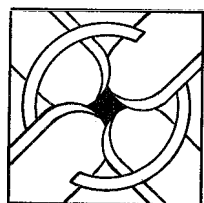
101 (1) BASIC TECHNIQUES OF BALLET 3Q A W S V 1-3. Fundamentals of body rhythms and coordination.

150 (4) BALLET THEATER 3Q A W S V 1-4 Prereq c/i. Production of ballet.

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

303 (3) ADVANCED BALLET 3Q A W S V 1-3 Prereq c/i. Advanced ballet technique.

BIOLOGICAL SCIENCES



deal with living things. The specific sciences are Bacteriology, Botany, and Zoology. Students take courses in each field.

This program provides a basic training in the Biological Sciences. It is designed for those graduates who might have to teach science and biology in high school. Other than teaching, there are very few opportunities for graduates of this program. It is recommended that

those students who might do graduate work other than in education, elect the curriculum in either Bacteriology, Botany, or Zoology.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN BIOLOGICAL SCIENCES. In addition to the general requirements for graduation listed earlier in the guidebook the following special requirements must be completed for the Bachelor of Arts degree with a major in Biological Sciences: 50 or more credits in Biological Science including Botany 121-122 (General Botany), Botany 123 (Spring Flora) or Botany 124 (Summer Flora), Botany 225 (Plant Physiology), Botany 284 (Evolution), Zoology 104-105 (Elementary Zoology), Zoology 106 (Field Zoology), Zoology 201 (Comparative Vertebrate Zoology), Zoology 202 (Human Physiology), Bacteriology 100 (Elementary Bacteriology), General 300 (Conservation of Natural and Human Resources).

The following courses in allied sciences must be completed: Chemistry 101-102-103 or 121-122-123 (students who plan to do advanced work should take the Chemistry 121-122-123) 2 quarters (3 recommended in order to fulfill the requirements for a teaching minor in the physical sciences) of Physics 111-112-113 or 221-222-223.

The foreign language requirement listed earlier in the guidebook 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 women, as well as men, trained in botany are available in numerous fields. Graduates in botany may find employment as biology teachers in high schools, or in Research Institutes and government agencies such as the Forest Service, Experiment 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.

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 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 guidebook, the following special requirements must be completed for the Bachelor of Arts degree with a major in Botany: 52 or more credits in Botany, including Botany 121-122, 123 (or 124), 225, 284, 355, 385, 429 (1-2 credits), 2-6 credits from the following: 329, 339, 349, 359, 369, 379; and the remaining credits from two of the three following groups: (1) 325, 334, 335, 337; (2) 341, 343, 345, 370, 375; (3) 361, 363, 365, 366, 368, 464, 465.

Also required are Zoology 104-105, 106 and Chemistry 101-102-103 or 121-122-123. Recommended electives: Geography 300, 320, 360; Geology 101-102; Physics 111-112-113 or 221-222-223. The foreign language requirement listed earlier in the guidebook must be satisfied; French or German preferred.

Courses 124, 250, 341, 355, 365, 366 and 370 may require field trips extending some miles from the campus. Students are required to pay their pro rata share of transportation and insurance costs for such trips.

All majors and graduate students are expected to attend a seminar with the staff once a month for the discussion of Botany, its history and problems. Field trips will be taken.

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

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

100 (S15) **FIELD BOTANY** 1Q Su 3 (0-15). Given only at Biological Station. The collection, preservation, and identification of plants and consideration of where they grow.

111-112 (10ab) **FORESTRY BOTANY** 2Q A W S 5 (3-4). (111) The anatomy and physiology of the higher plants; (112) outlines of the morphology and classification of the plant groups with particular emphasis upon the use of a manual for the identification of the flowering plants of the local area.

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

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

124 (S61) **SUMMER FLORA** 1Q Su 4 (2-6) 3 credits at Biological Station. The use of a manual for the identification of the flowering plants. Methods of collecting, pressing, and mounting plants. Field work.

130 (13) **PHARMACEUTICAL BOTANY** 1Q W 5 (3-4). Anatomy and physiology of plants with particular emphasis upon origin and structure of organs and tissues, growth and related phenomena. Outlines of plant classification with particular reference to drug-producing plants.

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

250 (27) **ELEMENTS OF PLANT ECOLOGY** 1Q S 3 (2-4) Prereq 112 or 123, and 225. An introduction to ecological principles, including interrelationship of environmental factors, primary and secondary succession, plant indicators and vegetation units.

284 (126) **EVOLUTION** 1Q W 3 (3-0) Prereq 121-122, 123, and Zool 101 or 104-105, and Zool 106. The theories of evolution from the historical point of view; the nature of evolutionary processes, the evidence for evolution, and the factors of evolution. Credit not allowed for this course and the identical course, Zoology 284.

329 (170, I) **PROBLEMS IN PLANT PHYSIOLOGY** 1Q a/q V 2-6 (0-3/cr) R-6 Prereq 225 and c/i. Individual or group work consisting of research problems, special readings, discussions, dealing with aspects of plant physiology not taken up in regular courses.

339 **PROBLEMS IN PLANT ANATOMY AND CYTOLOGY** 1Q a/q V 2-6 (0-3/cr) R-6 Prereq 335 or 337 and c/i. Individual or group work consisting of research problems, special readings, discussions, dealing with aspects of plant anatomy and cytology not taken up in regular courses.

349 (170, III) **PROBLEMS IN MORPHOLOGY** 1Q a/q V 2-6 (0-3/cr) R-6 Prereq 341 or 342 or 343, and c/i. Individual or group work consisting of research problems, special readings, discussions, dealing with aspects of plant morphology not taken up in regular courses.

359 (170, II) **PROBLEMS IN PLANT ECOLOGY** 1Q a/q V 2-6 (0-3/cr) R-6 Prereq 355 and c/i. Individual or group work consisting of research problems, special readings, discussions, dealing with aspects of plant ecology not taken up in regular courses.

369 (170, IV) **PROBLEMS IN TAXONOMY** 1Q a/q V 2-6 R-6 (0-3/cr) Prereq 365 and c/i. Individual or group work consisting of research problems, special readings, discussions, dealing with aspects of plant taxonomy not taken up in regular courses.

379 **PROBLEMS IN MYCOLOGY AND PHYTOPATHOLOGY** 1Q a/q V 2-6 (0-3/cr) R-6 Prereq 341 or 370 or 375, and c/i. Individual or group work, consisting of research problems, special readings, discussions, dealing with aspects of mycology and plant pathology not taken up in regular courses.

FOR UNDERGRADUATES AND GRADUATES

325 **PLANT BIOCHEMISTRY** 1Q A 5 (3-4) Prereq 225, Chem 263, and Phys 113 or 223. The chemical aspects of plant physiology; photosynthesis, respiration; enzymes; carbohydrate, lipid, and protein metabolism; hormones, by-products of plant metabolism.

334 (168) **MICROTECHNIQUE** 1Q a/q but preferably in the spring V 2-3 (0-3/cr) R-5 Prereq 15 credits in Botany. Methods of preparing microscopic slides, with emphasis on the paraffin method.

335 (121) **PLANT ANATOMY** 1Q A 5 (0-10) o/y Prereq 121, 122, 123, or =. The origin of organs and tissues and the anatomy of the vascular plants.

337 **CYTOLOGY** 1Q W 5 (3-4) Prereq 121, 122, and Chem 103, or =. The finer structures of the plant cell in relation to its functions.

341 (141) **MORPHOLOGY OF THE THALLOPHYTES** 1Q A e/y 5 (0-10) Prereq 121, 122, 123, or =. The morphology and life histories of the algae and fungi.

343 (142) MORPHOLOGY OF THE BRYOPHYTES AND PTERIDOPHYTES 1Q W o/y 4 (0-8) Prereq 121, 122, 123, or =. The morphology and life histories of the Bryophytes and Pteridophytes.

345 (143) MORPHOLOGY OF THE SPERMATOPHYTES 1Q S o/y 4 (0-8) Prereq 121, 122, 123, or =. The morphology and life histories of the gymnosperms and angiosperms.

355 (151) PLANT ECOLOGY 1Q S 5 (3-4) Prereq 123, 225, or =. An analysis of the environmental factors, emphasizing inter-relationships of habitat and vegetation; the concepts of plant succession, retrogression, plant indicators, and climax vegetation; and the distribution of vegetation in North America.

361 (S174) FRESH WATER ALGAE 1Q Su 3 (0-7) Given only at the Biological Station. Prereq 121, 122, 123 or =. Identification, classification, distribution, life histories and limnological relationships of the algae of the Northern Rocky Mountains.

363 (S176) BRYOPHYTES 1Q Su 3 (0-7) Given only at the Biological Station. Prereq 121, 122, 123, or =. The taxonomy, morphology, and ecology of the Bryophytes of the Northern Rocky Mountains.

365 (160) GENERAL SYSTEMATIC BOTANY 1Q S 5 (0-8) Given in summer at Biological Station for 6 credits. Prereq 121, 122, 123, or =. The identification and classification of vascular plants; principles of nomenclature; ecological distribution; methods of collecting, pressing, and mounting plants.

366 (164) AGROSTOLOGY 1Q W 5 (0-8) Given in summer at Biological Station for 3 credits. Prereq 121, 122, 123, or =. 365 recommended. Identification, classification, and ecological relationships of grasses, sedges, and rushes.

368 (S163) AQUATIC FLOWERING PLANTS 1Q Su 3 (0-7) Given only at the Biological Station. Prereq 365. Identification, classification and ecological distribution of the higher aquatic plants.

370 (125) FOREST PATHOLOGY 1Q S 5 (4-3) Prereq 250 or 355, and For 290-291. The agencies of disease and decay of trees and structural timbers.

375 (165) MYCOLOGY 1Q A 5 (3-4) Prereq 341 for Botany majors; 370 for Forestry majors. The classification and relationships of the fungi, with training in their collection, preservation, and culture.

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

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

464 CYTOTAXONOMY 1Q S 5 (3-4) Prereq 337, 355, 365, and 385. Modern concepts in taxonomy with emphasis upon cytological techniques used in chromosomal studies related to problems of taxonomy.

465 PHYTOGEOGRAPHY 1Q A 4 (4-0) Prereq 284, 355, 365, 366, and Geol 101-102 or 110. Vegetation types of the world and their history in North America.

490 SEMINAR IN BIOLOGY 1Q Su 1 (2-0). Special problems in biology. Offered at the Biological Station.

FOR GRADUATES

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

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

539 ADVANCED ANATOMY AND CYTOLOGY a/q V 2-6 (0-3/cr) Prereq c/i.

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

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

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

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

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

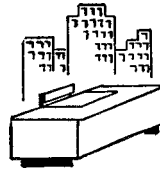
600 (200) ADVANCED BOTANICAL PROBLEMS a/q V (0-3/cr) R-15. Original investigations on a research problem under the guidance of a staff member.

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

COURSES OFFERED AT THE BIOLOGICAL STATION

100, 124, 349, 361, 363, 365, 366, 368, 369, 490, 521, 549, 551, 569, 600, 699.

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, statistics, secretarial work and business teacher training. 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 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 six-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 learn research techniques by carrying on a research project and in getting additional education in subject fields outside of business.

PRE-BUSINESS PROGRAM

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

The general university and pre-business administration requirements include: Health and Physical Education 101-102-103, 201-202-203; ROTC (men); English 101-102-103 or 104-105; requirements from 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.

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.

b. Complete core courses: Business Administration 320, 322, 330, 340, 357-358, 360, 446, and one of the following, Business Administration 353, or 355, or 466.

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, Statistics. 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 in the School of Business Administration. Courses outside the School of Business Administration which may count toward the 75 credit requirement are: All courses offered by the Department of Economics; English 304; History 333, 374; courses listed in the curricula of the areas of concentration.

f. Present not less than 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.

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

ACCOUNTING

Students majoring in accounting will elect the accounting curriculum designed for industrial and commercial accounting or the public accounting profession.

Those students desiring to enter the industrial accounting field must complete the following requirements in addition to the basic requirements of the School of Business Administration.

	cr.
Bus. Ad. 203-204—Intermediate Accounting	8
Bus. Ad. 303-304—Cost Accounting	6
Bus. Ad. 401—Income Tax	3
	17

A minimum of 12 credits chosen from:

	cr.
Bus. Ad. 301—Advanced Accounting	3
Bus. Ad. 305—Governmental Accounting	3
Bus. Ad. 405—Accounting Systems	4
Bus. Ad. 406—Managerial Accounting	4
Bus. Ad. 419—Accounting Seminar	2

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

	cr.
Bus. Ad. 203-304—Intermediate Accounting	8
Bus. Ad. 301-302—Advanced Accounting	6
Bus. Ad. 303-304—Cost Accounting	6
Bus. Ad. 401—Income Tax	3
Bus. Ad. 403-404—Auditing	8
	31

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

	cr.
Bus. Ad. 305—Governmental Accounting	3
Bus. Ad. 402—Income Tax	3
Bus. Ad. 405—Accounting Systems	4
Bus. Ad. 407—C.P.A. Review	5
Bus. Ad. 359—Business Law	3

BUSINESS EDUCATION

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

	cr.
Bus. Ad. 183—Advanced Typewriting	2
Bus. Ad. 184-185-186—Stenography	15
Bus. Ad. 192—Office Machines Practice	2
Bus. Ad. 193—Beginning Secretarial Practice	2
Bus. Ad. 194—Records Management	2
Bus. Ad. 384—Gregg Shorthand Theory for Teachers	3
Bus. Ad. 380—Methods of Teaching Shorthand, Typewriting and Transcription	2
Bus. Ad. 381—Methods of Teaching Bookkeeping and Basic Business	2
	30

*Business Education students are not required to take Speech 111, Math 112, Bus. Ad. 250, 353, 355, 446, or 466 and may substitute 383 for 340.

FINANCE

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

Requirements for a concentration in Finance are:

Bus. Ad. 205—Administrative Accounting	4
or	
Bus. Ad. 203—Intermediate Accounting	4
Bus. Ad. 324—Real Estate	4
Bus. Ad. 420—Investments	4
Bus. Ad. 421-422—Business Cycles and Business Forecasting	6
	18

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. 205—Administrative Accounting	cr. 4
Bus. Ad. 347—Managerial Economics	4
Bus. Ad. 363—Advertising Principles	4
or	
Bus. Ad. 364—Marketing Management	4
Bus. Ad. 421—Business Cycles and Business Forecasting	4
Bus. Ad. 441—Personnel Management	4
Bus. Ad. 444—Regulation of Industry	4
	24

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	cr. 6
Bus. Ad. 441—Personnel Management	4
Bus. Ad. 442—Personnel Management	4
or	
Bus. Ad. 341—Industrial Purchasing and Traffic Management	4
Bus. Ad. 444—Regulation of Industry	4
Econ. 321-322—Labor Economics	6
	24

Option B. Personnel Management and Human Relations

Bus. Ad. 205—Administrative Accounting	4
Bus. Ad. 441-442—Personnel Management	8
Bus. Ad. 444—Regulation of Industry	4
Psych. 343—Industrial Psychology	3
Econ. 321-322—Labor Economics	6
	25

MARKETING

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

30 credit hours in the area of marketing, including the following listed courses, are required:

Bus. Ad. 363—Advertising Principles	cr. 4
Bus. Ad. 364—Marketing Management	4
Bus. Ad. 361—Industrial Marketing	4
or	
Bus. Ad. 362—Retailing Principles	5
Bus. Ad. 461—Marketing Problems	4
Bus. Ad. 466—Market Survey Research	3
Bus. Ad. 205—Administrative Accounting	4
English 304—Letter and Report Writing	4
	27-28

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	cr. 2
Bus. Ad. 184-185-186—Stenography	15
Bus. Ad. 187-188—Advanced Stenography	10
Bus. Ad. 190-191—Advanced Shorthand Transcription	2
Bus. Ad. 192—Office Machines Practice	2
Bus. Ad. 193—Beginning Secretarial Practice	2
Bus. Ad. 194—Records Management	2
Bus. Ad. 382—Advanced Secretarial Practice	5
English 304—Letter and Report Writing	4
	44

*Secretarial Science students are not required to take Speech 111, Math 112, Bus. Ad. 250, 353, 355, 446, or 466 and may substitute 383 for 340.

STATISTICS

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

Requirements for a concentration in statistics include:

Six credit hours selected from:	cr.
B.A. 353—Sampling and Statistical Control	3
B.A. 355—Time Series Analysis	3
B.A. 466—Market Survey Research	3
Math. 302-303—Statistical Methods	6
Bus. Ad. 459—Business Statistics Seminar	6
English 304—Letter and Report Writing	4
Minimum of eight credit hours of work beyond the introductory course in one of the following areas:	
Accounting, Finance, Management, Marketing	8
	30

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 fully the general university and pre-business administration requirements and, during his junior year in the School of Business Administration, must complete Business Administration 320, 322, 330, 340, 360, plus additional credits as electives within the School of Business Administration (other than Business Administration 357-358-359).

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.

Students planning to take accounting courses in preparation for the examination for the certificate of Certified Public Accountant, and who desire to complete this combined program in six years, should take Elementary Accounting in their freshman year and should plan to take ten quarters of pre-law work.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS IN BUSINESS ADMINISTRATION

To achieve the degree of Bachelor of Arts in Business Administration, the student must complete the general university and pre-business administration requirements listed above; the business administration core courses listed above; the foreign language requirement; Bus. Ad. 205, 421, Public Finance or Labor Economics, and sufficient electives in Bus. Ad. courses to offer a minimum of 75 credit hours; 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; Bus Ad 201-202, 250, 320, 340, and 360; or equivalent courses. Students may enter the graduate 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 for the required thesis. A minimum of twenty credits, and a maximum of thirty credits including credits for thesis, are to be completed in one of the following areas of concentration: accounting, business education, finance, management, or marketing. A minimum of six credits must be completed in work outside the School of Business Administration.

**ACCOUNTING
FOR UNDERGRADUATES**

For explanation see Index under "Symbols"

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

203-204 (12ab) **INTERMEDIATE ACCOUNTING 2Q 203 A S 4, 204 A W 4 Prereq 202.** The fundamental accounting principles of valuation as applied to the balance sheet, and income determination as related to the operating statement. Problems involving the application of the above theories.

FOR UNDERGRADUATES AND GRADUATES

Bus Ad. 205, 301, 303, and 401 are available for graduate credit to non-accounting majors only.

205 (14) **ADMINISTRATIVE ACCOUNTING 1Q A S 4 Prereq 202.** Open only to non-accounting majors. To give students majoring in finance, marketing, management, or general business an understanding of the significance of accounting data without involvement in mechanical techniques. Interpretation of financial statements, internal control and its significance, budgeting, costing of products manufactured and sold, and accounting reports to administrative control. Credit not allowed for this course and 203-204.

301-302 (113ab) **ADVANCED ACCOUNTING 2Q 301 W S 3, 302 S 3 Prereq 204.** Enter either quarter. Problems of partnerships, installment sales, consignments, branch accounting, receiver-ship accounting, accounting for estates and trusts. The theory and preparation of consolidated statements in the second quarter.

303-304 (114ab) **COST ACCOUNTING 2Q 303 A W 3, 304 S 3 Prereq 202.** The methods of accumulating material, labor and manufacturing costs; the development of specific cost systems applicable to various types of production situations, e.g., job order, process and standard cost systems. The use of cost information in relation to managerial activities, which includes reports to management, budget preparation, break-even analysis, and cost-volume-profit relationship.

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

401-402 (145ab) **INCOME TAX 2Q 401 A W 3, 402 S 3 Prereq 202.** The accounting aspects of the federal income tax law. (401) the tax statutes as it applies to individuals with problems that emphasize the filing of individual returns; (402) corporate and partnership returns, and the special problems of federal estate and gift taxes. Federal and state tax research.

403-404 (115ab) **AUDITING 2Q A W 4 Prereq 204.** The general scope and purpose of auditing; encompassing generally accepted auditing standards and procedures, the audit program, and analysis of internal control. Procedures for verifying the reliability of balance sheet and operating accounts; preparation of audit working papers, reports, and submission of the auditor's opinion.

405 (146) **ACCOUNTING SYSTEMS 1Q W 4 Prereq 204.** The principles underlying the design and installation of accounting systems.

406 (148) **MANAGERIAL ACCOUNTING 1Q S 4 Prereq 204, 304.** For accounting majors who expect to prepare and interpret accounting reports specifically designed to aid management. The controllership function in modern management; preparation and use of business budgets; internal auditing; reporting and interpretation of cost data; other accounting control devices.

407 (149) **C.P.A. REVIEW 1 Q S 5 Prereq 302, 304, 404.** 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 (191) **ACCOUNTING SEMINAR 1Q a/q 2.**

FOR GRADUATES

502 (210) **CONTROLLERSHIP PRINCIPLES AND PRACTICE 1 Q A 3 Prereq 302 and approval of the graduate committee.** Analysis of the controllership 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 (211) **CONTEMPORARY ACCOUNTING THOUGHT AND PRACTICE 1Q W 3 Prereq 302 and approval of the graduate committee.** Modern accounting theory and practice. The development of accounting thought since 1900 and the social significance.

504 (212) **THEORY OF INCOME DETERMINATION 1 Q S 3 Prereq 302 and approval of the graduate committee.** The theories underlying the accounting calculation and disclosure of periodic net income. Economic, legal and tax concepts of income.

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

BUSINESS LAW

FOR UNDERGRADUATES

357-358-359 (141abc) **BUSINESS LAW 3Q 3 357 A W, 358 W S, 359 S. (357) Introduction to Law, contracts, agency; (358) Partnerships, personal property, including sales and insurance, security for credit transactions, real property; (359) Corporations, negotiable instruments, labor law, business torts, regulation of security sales and regulation of competition.** Students taking the combined 6-year curriculum in Business Administration and Law are not eligible to take this course.

FINANCE

FOR UNDERGRADUATES

329 (S138) **PERSONAL INVESTMENTS 1Q 2 Su.** Savings accounts, purchasing a home, 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

320 (134) **FINANCIAL INSTITUTIONS 1Q A W S 4 Prereq Econ 203.** The commercial and central banking system; the role of intermediary financial institutions.

322 (133) **BUSINESS FINANCE 1Q A W S 4 Prereq 320.** Forms of business organization; financial aspects of promotion and organization; sources of financing and the administration of income; failure and reorganization.

323 (135) **COMMERCIAL BANKING 1Q W 4 Prereq 320.** Liquidity, loan and investment policy, credit analysis, loan administration, interbank borrowing, bank operating costs, bank earnings, and relations with customers, government, and the public.

324 (131) **REAL ESTATE 1Q A 4 Prereq 320.** Factors that affect value of real estate; markets, title and real estate transfers.

330 (123) **PRINCIPLES OF INSURANCE 1Q A W S 3 Prereq Econ 203.** The nature of risk, basic insurance principles, and practices in the more important branches of the insurance business.

331 (124) **LIFE, ACCIDENT AND HEALTH INSURANCE 1Q A W S 3 Prereq 330.** The principles and practices of sound life insurance covering forms and kinds of policies, rate making, settlement options, reserves and surplus, and government regulation.

332 (125) **PROPERTY AND CASUALTY INSURANCE 1Q S 3 Prereq 330.** The social, economic, legal and scientific bases of the various lines of insurance.

420 (154) **INVESTMENTS 1Q S 4 Prereq 320.** Investment principles and their application in formulating investment policies for individuals and institutions. Current analytical techniques used in determining the value of securities.

421-422 (156ab) **BUSINESS CYCLES AND BUSINESS FORECASTING 2Q (421) A 4 Su 3 (422) W 2 Su 3 Prereq 320.** 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 324. 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, and the changing needs and instruments of corporation finance. Designed to develop in the student an ability to analyze and appraise current money market developments.

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

FOR GRADUATES

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

521 (222) PROBLEMS OF CORPORATE FINANCIAL MANAGEMENT 1Q W 3 Prereq 322. Problems associated with corporate financing of current and long term operations. The nature of securities and money markets and their relationship to corporate financing. Federal legislation affecting the flow of funds to business enterprises. Case problems and readings in current literature will be used extensively.

522 (223) 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 companies, investment banking firms, security dealers and brokers, and others).

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

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 (180) 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

340 (129) INDUSTRIAL ORGANIZATION AND MANAGEMENT 1Q A W S 4 Prereq Econ 203. Basic production management problems and practices: organization and administration; plant facilities, location and layout; production control; work simplification and personnel.

347 MANAGERIAL ECONOMICS 1Q A 4 Prereq 340. The application of economic analysis to the operation of a business. Demand and costs analysis, competitive and non-competitive pricing, and multi-line production and marketing problems.

441-442 (181ab) PERSONNEL MANAGEMENT 2Q 441 A W 4, Su 3, 442 S. Prereq 340 and Psych 110. (441) Personnel function in the industrial organization: selection, employee 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 (182) REGULATION OF INDUSTRY 1Q A W 4, Su 3 Prereq 320, 340, 360 and senior standing or c/i. Economic concentration and maintaining competition. Changing relationships between government and industry emphasizing regulatory legislation, administrative agencies, national policies and social control.

446 (195) ADMINISTRATION AND BUSINESS POLICIES 1Q A W S 4 Prereq 320, 340, 360. Top-management oriented to develop an integrated view of the organic specializations. Practice in analytical tools involved in problem solving and in coordination.

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

FOR GRADUATES

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

542 SEMINAR IN MANAGEMENT POLICIES AND PERSONNEL RELATIONS 1Q W 3. Managerial 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.

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

MARKETING

FOR UNDERGRADUATES

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

FOR UNDERGRADUATES AND GRADUATES

360 (151) MARKETING PRINCIPLES 1Q A W S Su 4 Prereq Econ 203. Product policy, channels of distribution, merchandising, marketing institutions, marketing functions, pricing, government regulation.

361 (161) INDUSTRIAL MARKETING 1Q W 4 Prereq 360. Economic factors affecting marketing policy are analyzed. Deals with buying practices, channels, sales organization, industrial distributors, price, markets, and research policies.

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

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

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

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

461 MARKETING PROBLEMS 1Q A 4 Prereq 360 and 6 other units in marketing courses. Case studies of problems facing the marketing executive.

464 (160) ADVANCED RETAILING 1Q S 4 Prereq 362. Management problems of large and small retailers. Emphasis on individual student projects and research.

465 (132) CREDIT AND CREDIT ADMINISTRATION 1Q W 3 Prereq 320 or Econ 301. The general nature and functions of credit, credit instruments, the credit executive, operation of the credit department, sources of credit information, acceptance of credit risk, establishment of credit limits and collections.

466 (153) MARKET SURVEY RESEARCH 1Q A S 3 Prereq 250, 360. The design and conduct of sample surveys of consumer behavior, intentions, habits, attitudes, and motivation.

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

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

FOR GRADUATES

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

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

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 Administration, Secretarial-Home Arts, or earning a teaching major or minor in Business Administration.

FOR UNDERGRADUATES

180-181-182 (20abc) ELEMENTARY TYPEWRITING 3Q 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 (21) ADVANCED TYPEWRITING 1Q A W S 2 Prereq 182 or placement. Application of basic skills to production jobs.

184-185-186 (22abc) STENOGRAPHY 3Q 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 (23abc) ADVANCED STENOGRAPHY 3Q A W S 5 Prereq 187: 186 or placement; 188: 187 and 190 or placement; 189: 188 and 191 or placement. Review, speed development, Civil Service and State Merit tests. Concurrent enrollment in 190-191.

190-191 (24ab) ADVANCED SHORTHAND TRANSCRIPTION 2Q W S 1 Prereq 186 or placement. Concurrent enrollment in 187-188 required.

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

193 (26) BEGINNING SECRETARIAL PRACTICE 1Q A W S 2 Prereq 182. Duplicating, dictating and transcribing machines.

194 (27) RECORDS MANAGEMENT 1Q W S 2 Prereq 182 and c/i. Alphabetic, Numeric, Automatic, Geographic, Subject, Decimal, and Soundex filing.

FOR UNDERGRADUATES AND GRADUATES

330 (32a) METHODS OF TEACHING SHORTHAND, TYPEWRITING, AND TRANSCRIPTION 1Q A 2 Prereq 183, 186 or teaching experience in business subjects. Required of teaching majors and minors in Bus. Ad.

331 (32b) METHODS OF TEACHING BOOKKEEPING AND BASIC BUSINESS 1Q A 2 Prereq 201 or teaching experience in business subjects. Required of teaching majors and minors in Bus. Ad.

382 (100) ADVANCED SECRETARIAL PRACTICE 1Q S. Alternate years. 5 Prereq 183, 187, 190, 192, 193, 194, Eng. 304, or c/i. Practical application to typical secretarial activities. Required for secretarial majors.

383 (105) OFFICE MANAGEMENT 1Q A Su 3. Principles of scientific office management.

384 (128) GREGG SHORTHAND THEORY FOR TEACHERS 1Q W Su 3 Prereq 185 or teaching experience and c/i. Required of teaching majors and minors in Bus. Ad.

FOR GRADUATES

580 (S106) IMPROVEMENT OF INSTRUCTION IN OFFICE MACHINES PRACTICE 1Q Su 3 Prereq 183 or business teaching experience, and c/i. Lecture, methods, and rotation-plan techniques in teaching newest office machines.

581 (S107) IMPROVEMENT OF INSTRUCTION IN SECRETARIAL PRACTICE 1Q Su 2 Prereq 183 or business teaching experience, and c/i. Lecture, methods, and rotation-plan techniques in teaching secretarial machines. Duplication processes in producing the high school newspaper.

582 (S139) PROBLEMS IN TEACHING BOOKKEEPING 1Q Su 3 Prereq 201 or bookkeeping teaching experience and c/i. Developing a course of study using the latest methods and materials.

583 (S142) PROBLEMS IN TEACHING GREGG SHORTHAND 1Q Su 3 Prereq 186 or shorthand teaching experience and c/i. Developing a course of study using the latest methods and materials.

584 (S143) PROBLEMS IN TEACHING TYPEWRITING 1Q Su 3 Prereq 183 or typewriting teaching experience and c/i. Developing a course of study using the latest methods and materials.

585 (S149) UNIT COURSES IN BUSINESS EDUCATION 1Q Su V R-10. Prereq major or minor in Bus. Ad. or business teaching experience and c/i. Several units may be taken in one or more summers. Each unit will carry a specific designation of topic covered.

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

STATISTICS
FOR UNDERGRADUATES

250 INTRODUCTORY BUSINESS STATISTICS 1Q A W S 4 Prereq Math 112. Methods of collection, analysis, and presentation of economic, social, and business data. Ratios, frequency distributions, averages, variability, sampling error, and measures of association.

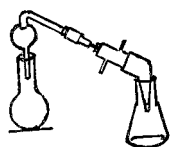
FOR UNDERGRADUATES AND GRADUATES

353 SAMPLING AND STATISTICAL CONTROL 1Q W 3 Prereq 250 or Math 125. Applications of sampling to business, statistical control of product quality, industrial processes, and inventories.

355 TIME SERIES ANALYSIS 1Q S 3 Prereq 250 or Math 125. The construction and historical analysis of economic time series including index number theory, techniques of the National Bureau of Economic Research, and regression studies.

459 BUSINESS STATISTICS SEMINAR a/q V R-6 Prereq 6 credits of statistics in 300 courses and c/i. Projects or topics selected in consultation with instructor.

CHEMISTRY



is the study of those processes in which substances disappear with the simultaneous appearance of new substances. Such changes include the transformation of raw materials and waste products into useful and valuable products. Chemistry is also concerned with the energy changes accompanying these transformations, such as the production of heat and electricity.

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

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

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN CHEMISTRY. In addition to the general requirements for graduation listed earlier in the guidebook the following special requirements must be completed for the Bachelor of Arts degree with a major in Chemistry: Chemistry 121-122-123, 245, 261-262-263, 344, 352, 371-372-373, 431-432-433, and 10 credits selected from Chemistry 345, 346, 347, 348, 353, 355, 356, 366, 463, 464, 465, 474, 475, 476, 481, 482, 490. Ten credits in upper division courses in allied fields may be substituted for the optional credits in Chemistry with the approval of the department. At the time of graduation, a major in Chemistry must have acquired a reading knowledge of German or five quarters of German. College Physics and Mathematics through 252 are required. Every student is required to pass a senior comprehensive examination.

CURRICULUM IN CHEMISTRY

Freshman Year

	A	W	S
	Cr.	Cr.	Cr.
Engl. 104-105—Freshman Composition	5	5	
Math. 151, 152, 153—Freshman Mathematics I, II, III	5	5	5
Chem. 121-122-123—College Chemistry	5	5	5
Elective, Group II or III			5
H.&P.E. 101-102-103—Physical Education	1	1	1
ROTC 101-102-103—Military or Air Science	2	2	1
	18	18	17

Sophomore Year

F.L. 101-102-103—Elementary German	5	5	5
Chem. 261-262-263—Organic Chemistry	4	4	4
Chem. 245—Quantitative Analysis			4
Math. 251, 252—Sophomore Mathematics	5	5	
H.&P.E. 201-202-203—Physical Education	1	1	1
ROTC 201-202-203—Military or Air Science	2	2	1
	17	17	15

Junior Year

Physics 221-222-223—General Physics	5	5	5
F.L. 213—Intermediate German	4		
F.L. 215—Advanced German		4	
Chem. 344—Advanced Quantitative Analysis	3		
Elective, Group II or III		3	
Chem. 371-372-373—Physical Chemistry	4	4	4
Electives			6
	16	16	15

Senior Year

Electives, Group II or III	5	7	
Chem 352—Inorganic Chemistry		3	
Chem. 431-432-433—Chemical Literature	1	1	1
Advanced Courses in Chemistry (see above)	3	2	5
Electives	6	2	9
	15	15	15

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

101-102-103 (11abc) GENERAL CHEMISTRY 3Q A W S Su 5 (5-4). The basic laws, properties and reactions of elements and compounds. For students desiring a one year general course only.

121-122-123 (13abc) COLLEGE CHEMISTRY 3Q A W S Su 5 (5-4) Prereq Placement above 001 in Mathematics entrance test or completion of Math 001. For science majors and those students wishing more than one year of chemistry. The principles and theories of chemistry, properties and relations of elements and inorganic compounds, including qualitative analysis. Students who have completed Chem 101-102-103 may not receive credit for 121-122 but are eligible for credit in 123.

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

260 (19) SURVEY OF ORGANIC CHEMISTRY 1Q W Su 5 (4-6) Prereq 103 or 123. Intended primarily for students not requiring three quarters of organic chemistry.

261-262-263 (38ab) ORGANIC CHEMISTRY 3Q A W S 4 (3-4) Prereq. 123.

FOR UNDERGRADUATES AND GRADUATES

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

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

346 (111) INSTRUMENTAL ANALYSIS 1Q W S Su V 2-5 (1 or 2—4 or 10) Prereq 245. Modern instrumental methods of analysis.

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

348 (15) ADVANCED QUALITATIVE ANALYSIS 1Q A 3 (2-4) Prereq 123. The use of modern techniques and methods of qualitative analysis.

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

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

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

366 (102) ORGANIC QUALITATIVE ANALYSIS 1Q S Su V 2-5 (1 or 2—4 or 10) Prereq 263. Systematic methods of identification of pure organic compounds and mixtures; general class reactions of organic chemistry.

370 (40) SURVEY OF PHYSICAL CHEMISTRY 1Q S 5 (5-4) Prereq 103 or 123, and 15 credits of college physics. Those portions of physical chemistry which are of special interest to prospective students of medicine.

371-372-373 (106ab) PHYSICAL CHEMISTRY 3Q A W S 4 (3-4) Prereq 245, 263, Math 252, and concurrent enrollment in Physics 222. The prereq of 263 may be waived by the instructor for students majoring in other departments. The more important methods, results and problems of theoretical chemistry.

384 (103) **PHYSIOLOGICAL CHEMISTRY** 1Q S 3 (3-0) or 5 (3-6) Prereq 260 or 263. Chemistry and metabolism of proteins, lipids and carbohydrates; respiration; colloids.

431-432-433 (113abc) **CHEMICAL LITERATURE** 3Q A W S Su 1 (0-2) R-4 since Chem 433 R-2 Prereq 260 or 263, and a reading knowledge of German. Presentation and discussion of current literature of chemistry. Use of the library.

463-464 (160) **THEORETICAL ORGANIC CHEMISTRY** 2Q a/q 3 (4-0) Prereq 263.

465 (162) **ADVANCED ORGANIC LABORATORY TECHNIQUES** 1Q a/q 2 (0-5) Prereq 263 and c/i.

466 **INSTRUMENTAL TECHNIQUES OF ORGANIC CHEMISTRY** 1Q a/q 2 or 3 (1-4 or 6) Prereq 463. Modern instrumentation applied to organic problems.

474 **CHEMICAL THERMODYNAMICS** 1Q S 3 (3-0) Prereq 372. The principles of thermodynamics and their application to chemical systems.

475 **ELECTROCHEMISTRY** 1Q A 3 (2-4) Prereq 372. The principles and applications of electricity to chemical reactions.

476 **RADIOCHEMISTRY** 1Q S 3 (2-4) Prereq 103 or 123, and c/i. The principles of nuclear reactions and application of radiochemistry.

481-482 **ELEMENTARY BIOCHEMISTRY** 2Q A W 4 (3-4) Prereq 262. Primarily for science majors.

490 **PROBLEMS AND RESEARCH** a/q V R-10 Prereq c/i. Independent library and laboratory work under the guidance of a staff member. An introduction to research methods.

FOR GRADUATES

630 **SEMINAR** a/q 0.

651-652-653 (650) **ADVANCED INORGANIC CHEMISTRY** 3Q A W S 3 (3-0) Prereq 352 and 373. Special topics in advanced inorganic chemistry.

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

661-662-663 **ADVANCED ORGANIC CHEMISTRY** 3Q A W S 3 (3-0) Prereq 263.

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

671-672-673 (670) **ADVANCED PHYSICAL CHEMISTRY** 3Q 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, and the technical phases of dramatic production and to give him experience in these areas; to prepare him to teach and direct in the high school theater; to prepare him for graduate work in theater; and to relate through the study of the art of the theater the place of theater in the societies of the past and the present.

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

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN DRAMA. In addition to the general requirements listed earlier, the following special requirements must be completed for the Bachelor of Arts degree with a major in drama. Drama 112, 121, 131, 223, 307-308-309, 251, 261, (4 cr), 301-302-303, 352, 401-402-403 (4 cr), plus a minimum of 9 additional credits in the drama department, 3 of which may be in Drama 101.

The following courses outside the drama department are required: Speech 118, 261, English 341, 343, 344 or 345.

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

The foreign language requirement listed earlier in the guidebook 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 full-length play and also must direct a play.

SPECIAL REQUIREMENTS FOR THE MASTER OF ARTS IN DRAMA. In addition to the general requirements of the Graduate School, candidates must take the Graduate Record examination and drama 232, 243, 251, and 341, for admission.

The following courses, if not previously taken at the undergraduate level must be included: English 307-308-309, 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 in upper division or graduate courses, 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 consists of the designing and execution of all technical aspects of a full-length play to be produced in the University Theater. Complete 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 (20) **REHEARSAL AND PERFORMANCE** 3Q a/q 1 R-6. Enter any quarter. Prereq c/i. Students engaged in any aspect of production including acting, directing, lighting, stagecraft, makeup, costumes, properties, business and publicity, etc. are eligible for registration.

112 (30) **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 (40) **ELEMENTARY ACTING** 1Q 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 (50) **ELEMENTARY STAGECRAFT** 1Q W 2 (2-4). Principles of and practice in the construction of stage scenery. Students will work on the construction crews of major productions.

223 (41) **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.

243 (51) **STAGE LIGHTING** 1Q A 2 Prereq 131. Principles and practice in stage lighting. Theatrical lighting equipment and instruments and their use. The elements of electricity.

251 (75) **STAGE MAKEUP** 1Q A 2 Prereq 112 or considerable previous experience and c/i. Principles of and practice in theatrical makeup. Students will work on makeup for major productions.

FOR UNDERGRADUATES AND GRADUATES

232 (125) **ADVANCED STAGECRAFT** 1Q S 3 Prereq 131. Types of stage scenery. Principles of and practice in scene painting. Advanced problems in scene construction and painting. Students will head construction and painting crews for major productions.

307-308-309 (177abc) **THE DRAMA** (see English)

261-262-263 **READINGS IN DRAMATIC LITERATURE** 3Q A W S 2. Enter any quarter. Plays of various periods. Periods and plays will vary from quarter to quarter, including Greek and Roman, The Restoration, 19th Century, Modern European, Modern American.

301-302-303 (105abc) **HISTORY OF THE THEATER** 3Q A W S 3 e/y. Enter any quarter. (301) World Theater to 1660. (302) World Theater, 1660-1850; (303) World Theater 1850 to Modern times.

313 (110) **THEATER IN THE COMMUNITY** 1Q A 2 e/y Prereq c/i. 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, acting, promotion, organization.

341 (126) **STAGE COSTUMING** 1Q S 2 Prereq 112 or considerable previous experience and c/i. 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.

351 (140) **ADVANCED ACTING** 1Q A 3 Prereq 121. Study and practice in creating a role. Application of the principles of voice, bodily action, pantomime, 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 (S175) **CREATIVE DRAMATICS FOR CHILDREN** 1Q W Su V 2-4 Prereq c/i. Children's literature suitable for adaptation to dramatic form; improvisational and other playmaking techniques; the dramatic method in teaching non-theater subjects, demonstrations and exercise with laboratory groups of children from the community.

381 **ART HISTORY OF THE THEATER** 1Q A 2. Visual arts of the theater as an important aspect of the aesthetic theories developed in selected periods of history.

394 (180) **WORKSHOP IN THEATER** 1Q Su V 2-10 Prereq Previous work in theater or drama courses and consent of chairman. Study and experience in the arts of the theater according to the needs, preparation, and desires of the students: costume, make-up,



lighting, stagecraft, backstage organization, stage design, acting, directing, rehearsal and performance, business, and house organization and management.

401-402-403 (190) THEATER PROJECTS 3Q a/q V 2-4 Prereq 10 credits in drama courses or in English 307-308-309, 341-342-343, and demonstrated ability in theater and drama; to others with c/i on basis of much work in drama and the theater. Independent work in design, lighting, costume design, direction, playwriting, study of drama.

422 (195) ADVANCED DIRECTION 1Q S 3 Prereq 121, 131 and 223. Technique of rehearsing and directing long plays. Principles of producing farce, fantasy, comedy, melodrama, tragedy.

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

441 ADVANCED MAKEUP 1Q S 2 Prereq 251 or experience and c/i. Principles and techniques of creating makeups for characters from dramatic literature.

FOR GRADUATES

511-512-513 (191) SEMINAR 3Q a/q V 2-4 Prereq 10 credits in drama courses or in Engl 307-308-309, 341-342-343, and c/i. The student may study the plays of a dramatist, inform himself about actors or playwrights, theaters, or movements in drama.

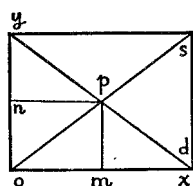
521 THEATER ADMINISTRATION 1Q A 3 Prereq c/i. Administrative and organizational techniques in the operation of theater producing organizations.

531 SEMINAR IN HIGH SCHOOL THEATER PRODUCTION 1Q W Su 2 Prereq 321. Intensive study of play production in the secondary schools with particular emphasis upon direction and training of high school students.

541 ADVANCED PLAYWRITING 1Q W V 2-4 R-6 Prereq Engl 306. Creative work of the student's choice. Structure, characterization and dialogue as used in the play form.

699 THESIS a/q V 2-5 R-15.

ECONOMICS



is that branch of the social sciences which deals with man's efforts to satisfy his wants by utilizing the scarce means provided by nature. The department considers its teaching goals to be three-fold: (1) To present to students the basic theoretical tools of economic analysis, relevant facts and institutional material, which will assist them as civic leaders. (2) To introduce students majoring in economics to the various special fields of study with-

in 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 guidebook, 50 credits 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 201-202-203, and 211; Mathematics 125; Political Science 202-203; two quarters of History 251-252-253; Anthropology 152 or Sociology 101; in the junior or senior year, Economics 301 and 311. The following may be counted toward a major in economics: History 333 and 374, Political Science 365, Mathematics 302-303, Business Administration 360, 421 and 460. 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 remainder of credits selected according to the student's interests. Economics 201-202-203; Mathematics 125; 301, 311, and at least 12 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 listed earlier in the guidebook, a minimum of 50 credits in economics must be earned in three years. First year of law will complete requirements for the Bachelor of Arts

degree with a major in economics. Students should take as many as possible of the following courses: History 345, 346, 376; Political Science 375; Business Administration 201-202; Speech 112. Latin is recommended for meeting the foreign language requirements.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

101 (10) CULTURAL ECONOMICS 1Q W 5. Institutional development of economic society, nature, origins and problems of modern capitalism.

201-202-203 (14ab) PRINCIPLES OF ECONOMICS 3Q a/q 3. (201) Nature of American economy, capitalistic production, money and its use, economic instability; (202) Markets, value and price; (203) Functional distribution of income; selected economic topics.

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

FOR UNDERGRADUATES AND GRADUATES

301 (101) 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.

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

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

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

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

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

321-322 (113ab) LABOR ECONOMICS 2Q A W Su 3 Prereq 203 or c/i. (321) Institutional and legal background of labor problems; (322) Economics of labor markets.

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

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

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

338 (109) ECONOMICS OF CONSUMPTION 1Q W Su 3 Prereq 203. Nature and analysis of consumers' decision-making.

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

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

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

369-370 (102ab) ECONOMICS OF TRANSPORTATION 2Q A W 3 Prereq 203. (369) Economic significance, systems, freight rates and their relations to location of industries and market centers, regulation; (370) Waterways, highways, pipelines, and airways.

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

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

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

380 (110) AGRICULTURAL ECONOMICS 1Q A 4 Prereq 203. Agricultural industry, supply of and demand for farm products, farm finance, taxation, agricultural policies.

382 (107) CONTEMPORARY ECONOMIC PROBLEMS 1Q S Su 3 Prereq 203.

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

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

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

490 (190) ADVANCED PROBLEMS a/q V 1-2 R-6 Prereq 12 credits in economics and c/i.

495 (195) SEMINAR IN ECONOMICS a/q V 1-2 R-6 Prereq 16 credits in economics and c/i.

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 699.

501 (201) GRADUATE RESEARCH a/q V R-6.

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

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 and requires that over half of the college graduates each year train for the profession of teaching.

Developing teaching competence involves securing a liberal education with special study in the fields in which the student is to teach, and study and practice in the area of teaching. In addition, the teacher must develop 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 by Montana State University for state certification to teach. Patterns of courses to be completed are planned in terms of the particular fields in which the student expects to teach.

Many University graduates 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 continental United States and its territories. In increasing numbers, American teachers find teaching assignments available to them in foreign lands.

After they have been granted a Bachelor's degree and have been certified to teach, persons in Education may take advanced work at the graduate level which will prepare them for specialized positions such as school administrator, supervisor, counselor, curriculum coordinator, and research director; or it may be used to build up their backgrounds in the field or fields which they teach. Montana State University offers graduate work leading to the Master's and Doctor's degrees.

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

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

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

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

Students preparing to teach in the elementary grades should major in Education; those preparing to teach particular subjects, either in junior or senior high schools, major in the principal subject to be taught or in Education; those preparing for library work major in Education or in Library Service; those preparing for counseling, supervising, administering, or research work usually major in Education.

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

To enroll in courses in Education, a student must have at least a C average in all course work for which credit has been received. To continue work in Education, at least a C average must be maintained in all course work.

In order to register for student teaching, a student must have at least a C average in his teaching major, in his teaching minor and in all courses in Education, 30 credits in the teaching major and 20 credits in the teaching minor.

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

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

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

PREPARATION FOR TEACHING IN THE SECONDARY GRADES. Candidates must earn a minimum of 40 credits in Education, including the following required courses totaling 34 credits: Education 200, 205, 305, 342, 405 (10 credits), 450 and 452 or their equivalents, and elective courses totaling 6 credits selected from other courses in Education. Students wishing to qualify for the Secondary School General Standard Certificate are required to earn 45 or more credits in a teaching major and 30 or more credits in a teaching minor. Requirements for teaching majors and minors in various areas will be found in the last few pages of the Education section of the guidebook.

Suggested Curriculum in secondary education:

Freshman Year

	A Cr.	W Cr.	S Cr.
Engl 104-105—Freshman Composition	5	5	
Genl 131-132-133—Introduction to Biol Sci	5	5	5
Genl 151-152-153—Intro to the Humanities	5	5	5
Psyc 110—Introduction to Psychology			5
H&PE 101-102-103—Freshman Physical Education	1	1	1
ROTC 101-102-103—Military or Air Science	2	2	1
or	2	1	2
	16-18	16-18	16-18

Sophomore Year

History, Political Science, Sociology or Economics (to fulfill Group II Requirements)	4	4	4
Educ 200—Intro to Education (a/g)			4
Teaching Major Sequence (listed later)	4-5	4-5	4-5
Teaching Minor Sequence (listed later)	4-5	4-5	
Electives	2	2	2-3
H&PE 201-202-203—Soph. Physical Education	1	1	1
ROTC 201-202-203—Military or Air Science	2	2	1
or	2	1	2
	15-19	15-19	15-19

Junior Year

Educ 205—Educational Psychology	4		
Educ 305—Secondary School Teaching Procedures		5	
Educ 342—The School Library in Teaching	3		
Educ Methods Course (in one or both teaching areas)			4
Teaching Major Sequence (listed later)	4-5	4-5	4-5
Teaching Minor Sequence (listed later)	4-5	4-5	4-5
Electives		2	3
	15-17	15-17	15-17

Senior Year

Educ 405—Student Teaching: Secondary (any two quarters)	5	5	
Educ 450—Guidance in the Elementary and Secondary School			4
Educ 452—Educational Measurement		4	
Elective Courses in Education	3		3
Teaching Major or Minor Sequence, or Electives	7-9	7-9	8-10
	15-17	16-18	15-17

PREPARATION FOR TEACHING IN THE ELEMENTARY GRADES. Candidates must earn a minimum of 40 credits in Education including the following required courses totaling 36 credits: Education 200, 202, 301, 302, 303, 318, 340, 404 (minimum of 10 credits); and elective courses totaling 4 or more credits selected from other courses in Education.

In addition, the student will complete work in the following areas: English, 24-25 credits; History and Political Science, 26 credits; Geography, 5 credits; Science, 13 credits; Mathematics, 5 credits; Health and Physical Education, 9 credits; Psychology, 10 credits; Art, 6 credits; and Music, 6 credits.

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

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

Suggested curriculum in elementary education:

Freshman Year

	A Cr.	W Cr.	S Cr.
Engl 104-105—Freshman Composition	5		
Genl 125—Physical Science for Teachers		5	
Genl 126—Biological Science for Teachers			5
Hist 101-102—The Development of Western Civilization	5	5	
Math 130—Theory of Arithmetic	5		
Psyc 110—Introduction to Psychology			5
Speech 111—Principles of Speech			5
H&PE 101-102-103—Freshman Physical Education	1	1	1
ROTC 101-102-103—Military or Air Science	2	2	1
or	2	1	2
	16-18	16-18	16-18

Sophomore Year

Educ 200—Introduction to Education	4		
Educ 202—The Elementary School Child		5	
Engl 231-232-233—Intro to Major American Writers	3	3	
Geog 101—Elements of Geography	3		
Music 122-123—Music Educ. in Elementary Schools	3	3	
P Sc 101—Introduction to Government			4
P Sc 202—American Government			or
Psyc 200—Child and Adolescent Psychology		5	4
H&PE 199—First Aid		2	
H&PE 201-202-203—Sophomore Physical Education	1	1	1
ROTC 201-202-203—Military or Air Science	2	2	1
	or	2	2
Electives			3
		16-18	14-16 16-17

Junior Year

Art 303-304—Elementary School Art	3	3	
Educ 301-302-303—The Child and the Curriculum	4	3	3
Educ 318—Supervision and Teaching of Science in the Elementary School			3
Educ 340 Children's Literature		4	
Genl 300—Conservation of Natural and Human Resources		3	
Hist 251-252-253—United States History	4	4	4
H&PE 339—Teaching Phys Educ in the Elementary School			3
Electives	4		4
		15	17 17

Senior Year

Educ 404—Student Teaching: Elementary (a/q)	10		
H&PE 373—School Health Problems			4
Electives	6	16	12
		16	16 16

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

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

1. A Bachelor's degree from Montana State University, or other approved institution of higher education.
2. Twenty-four or more quarter credits in Education designated by the Dean of the School of Education (see Preparation for Secondary Teaching below).
3. A teaching major (45 or more credits) and a teaching minor (30 or more credits) in fields commonly taught in high schools (see Course Requirements in Teaching Major and Minor Fields below).

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

1. 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 the elementary grades will similarly submit a statement setting forth their proposed programs. Each candidate for a certificate who has not already received credit in Student Teaching (Educ 404 or 405) will be assigned definite quarters in which he must register for that course.

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

Freshman or Sophomore year: Psyc 110 (not counted among the 24 credits required for secondary certification)
 Sophomore or Junior year: Educ 200, 4 credits; Educ 205, 4 credits
 Junior year: Educ 305, 5 credits
 Senior year: Educ 405, a minimum of 5 credits

In addition to the 18 credits of Education courses listed above for students seeking a secondary certificate, the student must take electives to make up the required total of at least 24 credits. A special methods course in one of the student's teaching fields is recommended. Only one methods course in any one field, however, may be included in the 24 credits in Education required for a secondary certificate. Education 450, 452, or a second quarter of Education 405 is recommended.

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

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

PREPARATION FOR SCHOOL LIBRARIANS. The library service program is designed to train school and teacher-librarians to meet the requirements of the Northwest Association of Secondary and Higher Schools and of the State of Montana. The minimum requirement for schools of under 100 enrollment includes Education

343, 344, and 345. The student planning a more extended program should consult the library service instructor for advice on additional courses.

SPECIAL REQUIREMENTS FOR THE MASTER OF ARTS IN EDUCATION. In addition to the general requirements of the Graduate School, (except for the foreign language requirement) candidates must include a minimum of 10 credits of cognate work based upon a minimum of three courses. Such cognate 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 concerned with techniques or training in specific skills. The candidate will present a thesis for which 6 to 9 credits may be allowed.

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 following the two years' teaching experience. All candidates for the Master of Education degree must also complete a minimum of 15 residence credits of graduate work in Education. The total number of credits in Education taken as undergraduate and graduate credit shall not be less than 54.

Two programs leading to the Master of Education degree are available:

A. Master of Education With Professional Paper. Candidates for this degree must complete 45 credits of graduate work, including credit in Methods of Educational Research (Education 595 or equivalent), and a minimum of 10 credits of cognate work based upon a minimum of three courses (See requirements for Master of Arts in Education).

The candidate must prepare a professional paper 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 comply in mechanical features with those required of an acceptable thesis. Two copies of this paper must be bound and submitted to the Dean of the School of Education.

Candidates electing this program leading to the Master of Education degree must take examinations covering the field of education and the professional paper. Arrangements for this examination will be made by the Dean of the School of Education.

B. Master of Education Without Professional Paper. Candidates who choose not to do the professional paper will be required to offer a total of 54 graduate credits, including Methods of Educational Research (Education 595 or equivalent) and not less than 15 credits of cognate work. They will take examinations covering the field of education—such examination 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 copy under Graduate School.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

200 (20) INTRODUCTION TO EDUCATION 1Q A W S Su 4 Prereq Psyc 110. Teaching as a profession. The American public school and its purposes. The development, structure, support, and control of schools locally and nationally. Problems, issues, and trends in education today.

202 (22) THE ELEMENTARY SCHOOL CHILD 1Q A W S 5, Su 3 Prereq 200 and Psyc 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 (23) EDUCATIONAL PSYCHOLOGY 1Q A W S Su 4 Prereq 200 and Psyc 110. The growth and developmental characteristics of adolescents. Psychological foundations of learning in the junior and senior high schools.

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

301-302-303 (24abc) THE CHILD AND THE CURRICULUM 3Q A 4, W S Su 3, Prereq 202. (301) The language background of reading, reading readiness, psychology of the reading process, reading skills, and related diagnostic and remedial measures. Materials and teaching procedures in oral and written communications, spelling and handwriting. (302) The place and function of arithmetic, including types of instruction, criteria for selection, placement and organization of content. (303) The relationship of literature and social studies to the development of basic concepts and appreciations in human relationships and community living; evaluating, organizing, and using related materials.

305 (25) SECONDARY SCHOOL TEACHING PROCEDURES 1Q A W S Su 5 Prereq 200 and 205. Methods of planning, presentation, evaluation, and discipline. The materials of classroom teaching. Demonstration, observation, and related activity involving student participation.

341 ADMINISTRATION OF THE SMALL PUBLIC AND COLLEGE LIBRARY 1Q A 4 Prereq c/i. Objectives of library service, library routines and procedures, library buildings and equipment, the library's place in governmental organization, library extension work.

404 (28) STUDENT TEACHING: ELEMENTARY 1Q A W S Su V R-16 Prereq 301-302-303, 318 and consent of Director of Student Teaching. Students will do supervised teaching in co-operating schools in western Montana. Weekly meetings with the University Supervisor. Ten credits are required for elementary certification. The student should expect to spend either a full morning or a full afternoon in the elementary school classroom during student teaching.

405 (26) STUDENT TEACHING: SECONDARY 1Q A W S Su V R-15 Prereq 305 or =, and consent of Director of Student Teaching. Observation and supervised teaching in Montana public

schools under the supervision of co-operating teachers and staff members of the School of Education; weekly meetings with the University Supervisor required. A minimum of 5 credits is required for secondary certification.

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

FOR UNDERGRADUATES AND GRADUATES

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

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

314 (176) 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.

316 (175) SUPERVISION AND TEACHING OF ARITHMETIC 1Q Su 3 Prereq teaching experience or c/i. Curriculum trends, instructional materials, research, and supervisory techniques relevant to a modern elementary school arithmetic program.

318 (179) SUPERVISION AND TEACHING OF SCIENCE IN THE ELEMENTARY SCHOOL 1Q S Su 3 Prereq Gen 125, 126 and Educ 202 or c/i. Curriculum planning, development and use of instructional materials, teaching procedures.

324 (118) TEACHING OF CONSERVATION 1Q S Su 3 Prereq Gen 300 and 12 credits in Educ and c/i. Current conservation programs and materials. Integral part of summer Conservation Education Workshop.

325 (122) PROBLEMS IN CONSERVATION EDUCATION 1Q Su Prereq c/i. May be taken for 3 credits if taken concurrently with Educ 324 or for 6 credits if preceded by Educ 324 and Gen 300. Designing, selection, and evaluation of materials for the teaching of conservation.

330 (171) EARLY CHILDHOOD EDUCATION 1Q S Su 3 Prereq 12 credits in Elementary Education or teaching experience, and c/i. Theory and techniques of teaching in the kindergarten and primary grades as a unified program.

334 (155) REMEDIAL READING 1Q S Su 3 Prereq a basic course in teaching of reading or teaching experience, and c/i. Diagnosis and treatment of reading difficulties at elementary, secondary, and college levels. Methods and materials for specialists, classroom teachers, and administrators who wish to initiate remedial programs.

340 (101) CHILDREN'S LITERATURE 1Q W or S Su 4. Survey of children's literature. The elementary school library.

342 (180) THE 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 Library Service major or minor.

343 (141) ORGANIZATION AND ADMINISTRATION OF THE SCHOOL LIBRARY. 1Q A 4 Su 3. Objectives of school library service, library routines, procedures, quarters, equipment, and costs. For part-time teacher-librarians without library training.

344 CATALOGING AND CLASSIFICATION 1Q W 4, Su 3 Prereq 341 or 343. Principles of classification and cataloging for small libraries.

345 BIBLIOGRAPHY AND BOOK SELECTION 1Q W 4, Su 3 Prereq 341 or 343. Book selection and order work for the small library. Book lists and bibliographies.

346 LIBRARY REFERENCE MATERIALS 1Q S 4, Su 3 Prereq 341 or 343. Basic reference books and bibliographies commonly found in small libraries; reference methods, citation, and bibliographic form.

347 (145) AUDIO-VISUAL AIDS 1Q A W Su 3. Classroom utilization of projection—16 mm., filmstrip, photographic and handmade slides, overhead and opaque; tape recordings, and other instructional materials. Credit not allowed for this course and Music 363.

360 (158) EDUCATIONAL SOCIOLOGY 1Q A Su 3. Education in modern social, economic, and political life; the school as a social institution; problems of American life which affect and are affected by the work of the public schools.

370 (120) THE TEACHER AND SCHOOL ORGANIZATION 1Q Su 3 Prereq teaching experience or c/i. The teacher's relationship to the organization, management, and financing of American public education with special emphasis on personnel problems, community relations, and organizational structure of schools.

420 (117) METHODS OF TEACHING SECONDARY SCIENCE 1Q S Su 3 Prereq 12 credits in Secondary Education, a science minor and c/i. Problems involved in development of an adequate high school science program; curriculum methods, instructional materials.

425 (110) SAFETY EDUCATION AND DRIVER TRAINING 1Q S Su 3 Prereq c/i. Supervised experience in teaching driving and theoretical aspects of driver education. General safety educa-

tion. To prepare 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 (125) ADVANCED SAFETY EDUCATION AND DRIVER TRAINING 1Q Su 2 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 Highway Patrol.

428 (173) METHODS OF TEACHING SOCIAL STUDIES IN SECONDARY SCHOOLS 1Q W Su 3 Prereq 12 credits in Secondary Education. Problems involved in the teaching of social studies in junior and senior high schools; curriculum planning, development and presentation of units of instruction, selection and use of materials.

431 (148) THE SLOW AND RETARDED LEARNERS 1Q W Su 3 Prereq 12 credits in Education. Needs, aims, traits, identification, curriculum, teaching methods, and research.

432 (151) THE BRIGHT AND GIFTED PUPILS 1Q S Su 3 Prereq 12 credits in Education. Needs, aims, traits, identification, curriculum, teaching methods, and research.

434 (195) REMEDIAL READING LABORATORY 1Q Su 5 or 10 weeks, 3 or 5 credits. Prereq Educ 334 (or taken concurrently) and c/i. Supervised practice in diagnosis and remedial instruction, 1 hour per day work with selected elementary, secondary, or college students. Seminar meetings.

438 (159) THE JUNIOR HIGH SCHOOL 1Q S 4, Su 3 Prereq 12 credits in Education. Objectives, organization, class scheduling, curriculum, and extra-curricular activities.

441 (184) EVALUATION OF SCHOOL LIBRARY SERVICES AND MATERIALS 1Q S Su 2 Prereq 12 credits in Library Service. Methods of evaluating and improving school library services to teachers and students.

442 LIBRARY WORK WITH CHILDREN 1Q S 4, Su 3 Prereq 341 or 343 and a course in children's literature. Work with children in school and public libraries, including story telling and organization of the children's department in the public library.

443 (187) LIBRARY WORKSHOP 1Q Su 3 Prereq 9 credits in Library Service. Problems of library service. General sessions and committee work; individual work on problems of special interest within the workshop topic.

444 LIBRARY SEMINAR 1Q a/q V 1-5 R-10 Prereq 20 or more hours in Library Service and consent of the Director of Library Service. Independent study and research. Group analysis and discussion of individual projects.

450 (140) GUIDANCE IN THE ELEMENTARY AND SECONDARY SCHOOL 1Q A W S Su 4 Prereq 301-302-303 or 305, or teaching experience. Orientation to the need, organization, and methodology of guidance services in the elementary and secondary schools.

452 (152) 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; analysis of standardized tests; construction and use of teacher-made tests.

454 (167) OCCUPATIONAL INFORMATION 1Q W Su 3 Prereq 450 or =. Sources, including job analysis and surveys; occupational trends, classification, filing system, evaluation, selection, and use of occupational information.

455 (168) TECHNIQUES OF COUNSELING 1Q W 4 Su 3 Prereq 450, 452 and c/i. Evaluation of guidance instruments and techniques, analysis of data; counseling and interview procedures; sources of referral.

461-462 (166ab) HISTORICAL FOUNDATIONS OF AMERICAN EDUCATION 2Q W S Su 3. Historical and philosophical backgrounds of present day trends and issues in Education. Enter either quarter. (461) to 1650; (462) 1650 to present.

490 (190) INDEPENDENT STUDY a/q V R-10 Prereq c/i. Selected topics under the guidance of a staff member. Term papers may be required.

494 (154) 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

531 (271) ELEMENTARY CURRICULUM 1Q S 4, Su 3. Major trends in course content, grade placement, organization of materials, and evaluation of outcomes.

532 (277) SECONDARY CURRICULUM 1Q A 4, Su 3. Sociological, psychological, and philosophical foundations of the secondary school. Curriculum trends in the separate subjects, and organizing for curriculum development.

535 (161) CURRICULUM WORKSHOP 1Q Su V R-10 Prereq teaching experience and c/i.

550 (265) ADVANCED EDUCATIONAL PSYCHOLOGY 1Q W Su 3. General behavior and learning; motivation, interference reduction, reinforcement, teaching for permanence and transfer. Current research in field.

552 (188) PRACTICE IN GUIDANCE 1Q S Su V 2-4 Prereq 455 or = and c/i. Supervised practice in testing and counseling, and observation in neighboring schools. Seminar discussions weekly.

561 (266) COMPARATIVE EDUCATION 1Q S Su 3. A comparison of the education systems of United Kingdom, France, Germany, Italy, the Soviet Union, Japan and the United States.

564 (272) PHILOSOPHY OF EDUCATION 1Q A Su 3 Leading philosophical points of view in Education; concepts of the individual, society, the educative process, and the role of education.

568 (278) 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, the family, the estate, and other social institutions.

570 (250) EDUCATIONAL ADMINISTRATION 1Q A Su 4 Prereq teaching experience. Administrative relationships at federal, state, and local levels; responsibilities of county and district school superintendents.

572 (260) ELEMENTARY SCHOOL ADMINISTRATION 1Q W Su 3 Prereq teaching experience. Problems in administering the elementary school. Role and competencies of the elementary principal.

573 (232) SECONDARY SCHOOL ADMINISTRATION 1Q W Su 3 Prereq teaching experience. Administration of secondary education. Role of the principal and areas of competency.

575 (234) SCHOOL SUPERVISION 1Q S 4, Su 3 Prereq teaching experience. Roles and responsibilities of assigned leaders for improving instruction and promoting in-service growth of personnel.

576 (256) SCHOOL FINANCE 1Q S Su 3 Prereq teaching experience. Sources of school revenues; related costs, inequalities, legal limitations, and proper expenditures; relationships of foundation programs and district reorganization.

577 (251) PLANNING THE SCHOOL BUILDING PROGRAM 1Q Su V 2-4 Prereq 570 or = and c/i. Procedures in determining building needs, site selection, planning the building, financing, and supervision of construction.

579 (253) 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.

581 (291) COLLEGE TEACHING 1Q Su 3 Prereq 30 credits of graduate work. The type of teaching applicable to the college level.

590 (290) INDEPENDENT STUDY a/q V R-10 Prereq consent of adviser and instructor. Selected topics under the guidance of a staff member.

594 (254) SEMINAR a/q V R-10 Prereq c/i. Group analysis of problems in specific areas of education.

595 (285) METHODS OF EDUCATIONAL RESEARCH 1Q A S Su 4. Research problems: their statement, organization, techniques, tabulation of materials, statistical concepts necessary for interpretation of research data.

597 (282) EDUCATIONAL STATISTICS 1Q A Su 4 Prereq Math 125, Educ 452 and 595 or concurrent registration therein and c/i.

599 (201) RESEARCH a/q V R-15 Prereq c/i.

699 (299) THESIS OR PROFESSIONAL WRITING a/q V R-9.

799 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.

- Art 307 Methods of Teaching Secondary Art.
- B Ad 380 Methods of Teaching Shorthand, Typewriting, and Transcription.
- B Ad 381 Methods of Teaching Bookkeeping and Basic Business.
- B Ad 384 Gregg Shorthand Theory for Teachers.
- B Ad 582 Problems in Teaching Bookkeeping.
- B Ad 583 Problems in Teaching Gregg Shorthand
- B Ad 384 Gregg Shorthand Theory for Teachers.
- B Ad 585 Unit Courses in Business Education.
- Engl 481 Methods of Teaching English.
- For L 391 Methods of Teaching Foreign Languages.
- For L 401 Foreign Language Workshop.
- H&PE 335 Methods of Teaching Physical Education.
- H&PE 373 School Health Problems.
- H Ec 321 Methods of Teaching Home Economics.
- H Ec 421 Advanced Problems in Teaching Home Economics.
- Jour 316 School Publications.
- Math 301 Algebra for Teachers.
- Math 304 Geometry for Teachers.
- Mus 323-324-325 School Music
- Rel 330 Principles of Religious Education (for Education majors only).

COURSE REQUIREMENT IN 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 guidebook 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 patterns of teaching majors and minors are changed by the State Department of Public Instruction subsequent to the issuance of this guidebook, the University reserves the right to modify accordingly the requirements listed below.

Major teaching requirements are not necessarily the same as major departmental requirements for graduation. The student

might qualify for the state certificate in a subject field by earning 45 credits, but still not meet requirements for graduation as a major in the University department. Students who graduate with a major in a subject field taught in Montana high schools will ordinarily qualify for the certificate, provided other requirements are met. Students should keep in mind that a course may not be counted in more than one teaching major or minor.

ART

	Teaching Major (45 credits) 38 credits as follows:	Teaching Minor (30 credits) 26 credits as follows:
Required Courses:		
Art 123—Drawing	6	6
Art 125-126—Color and Design	6	6
Art 127 or 128—Crafts	2	2
Art 135—Sculpture	3	3
Art 140—Painting	6	—
Art 151—Life Drawing	3	—
Art 231-232-233—History of Art	9	6
Art 307—Methods of Teaching Secondary Art	3	3

	7 credits from the following:	4 credits from 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

	Teaching Major (45 credits) 38 credits as follows:	Teaching Minor (32 credits) 32 credits as follows:
Required Courses:		
B Ad 193—Advanced Typewriting	2	2
B Ad 184-185-186—Stenography	15	15
B Ad 192—Office Machines Practice	2	—
B Ad 193—Beg. Secretarial Pract.	2	2
B Ad 194—Records Management	2	—
B Ad 201-202—Elementary Accounting ..	8	4
B Ad 380—Methods of Teaching Short-hand, Typewriting and Transcription ..	2	2
B Ad 381—Methods of Teaching Book-keeping and Basic Business	2	2
B Ad 384—Gregg Shorthand Theory for Teachers	3	5

	7 credits from the following:
Electives:	
B Ad 320—Financial Institutions	4
B Ad 330—Principles of Insurance	3
B Ad 357-358-359—Business Law	6
B Ad 360—Marketing Principles	4
B Ad 383—Office Management	3
Econ 201-202-203—Principles of Economics	9

DRAMA (Minor Only)

	Teaching Minor (31 credits)
Dram 121—Elementary Acting	2
Dram 131—Elementary Stagecraft	2
Dram 223—Elementary Direction	3
Dram 243 Stage Lighting	2
Elective Drama	9
Spch 111—Principles of Speech	5
Spch 118—Voice and Diction	3
Spch 261—Beginning Oral Interpretation	3
Elective in Speech	2

ECONOMICS AND SOCIOLOGY (Minor Only)

	(31-33 credits)
Anth 153—Social Anthropology	5
or 152—Elementary Anthropology	—
Econ 201-202-203—Principles of Economics	9
Econ 301—Money and Banking, or Econ 311—Intermediate Econ Analysis	4
Soc 101—Introductory Sociology	5
Soc 102—Social Problems	5
Electives: Soc 302, 304 or 402	3-5

ENGLISH

	Teaching Major (60 credits) 31-33 credits as follows:	Teaching Minor (30 credits) 30 credits as follows:
Required Courses:		
Engl 201—Advanced Composition	3	3
Engl 211-213—Intro to Major British Writers	6	6
Engl 232-233—Intro to Major American Writers	6	6
Spch 111 or 261 Principles of Oral Interpretation	3-5	5
Engl 342 or 343—Shakespeare and Contemporaries	3	3
Engl 371—The English Language	3	—
Engl 381—Literature for the High School Teacher	3	3
Engl 481—Methods of Teaching English ..	4	4
Electives:		

The majors must elect at least 10 credits in the related fields below, including one course from each field. Other electives may be chosen from courses in the Department of English. Students should elect one course in American literature, one in British litera-

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ture, and one in creative writing. RELATED FIELDS: Drama 321 (strongly recommended), 101, 121, 131, 243, 251; Journalism 127, 270, 316, 360, 380; Speech 111, 112, 118, 214, 261 and 321.

FOREIGN LANGUAGES

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

Modern Languages (French, German or Spanish)

	Teaching Major (45 credits or equivalent)	Teaching Minor (30 credits or equivalent)
Required Courses: 32 credits as follows:		
F. L. 101-102-103—Elementary	15	15
F. L. 213—Intermediate	4	4
F. L. 215—Advanced	4	4
F. L. 217—Review of Grammar and Composition	3	3
F. L. 301-302-303—Survey of Literature	6	4
Electives: Any course numbered 300 or above	13	

Classical Languages (Latin)

	Teaching Major (45 credits or equivalent)	Teaching Minor (30 credits or equivalent)
Required Courses: 28 credits as follows:		
F. L. 101-102-103—Elementary	15	15
F. L. 213—Intermediate	4	4
F. L. 215—Advanced	4	4
F. L. 217—Latin Readings	5	2
Electives: F. L. 491—Seminar	17	5

HEALTH AND PHYSICAL EDUCATION FOR MEN

	Teaching Major (48 credits)	Teaching Minor (33 credits)
Required Courses:		
H&PE 198—Intro. to Physical Education	3	3
H&PE 199—First Aid	2	2
H&PE 210, 310, 321-322—Coaching—Football, Basketball, Track	8	6
H&PE 211-212, 311-312—Officiating—Football, Basketball	4	2
H&PE 240—Care & Prev. of Athletic Injury	2	2
H&PE 326—Dance Methods & Materials	2	2
H&PE 335—Methods of Teaching Phys. Ed.	3	3
H&PE 337—Elem. School Phys. Ed. Prog.	3	3
H&PE 365—Organization & Administration	4	4
H&PE 373—School Health Problems	4	4
H&PE 380—Applied Anatomy	5	—
H&PE 465—Testing in Phys. Ed.	3	—
H&PE 490—Teaching of College Phys. Ed. Activities	2	2
Electives: Other courses in the department	3	3
Notes: 1. Majors and Minors substitute courses 115-116-117, 118-119-120 for courses 101-102-103, 201-202-203 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

	Teaching Major (48 credits)	Teaching Minor (33 credits)
Required Courses:		
H&PE 198—Intro. to Physical Education	3	3
H&PE 199—First Aid	2	2
H&PE 231-232—Officiating—Volleyball, Basketball	4	2
H&PE 301-302—Teaching of Team Sports for Women; Teaching of Individual Sports for Women	4	4
H&PE 324-325-326—Dance Methods and Materials	6	4
H&PE 335—Methods of Teaching Phys. Ed.	3	3
H&PE 337—Elem. School Phys. Ed. Prog.	3	3
H&PE 365—Organization and Administration	4	4
H&PE 373—School Health Problems	4	4
H&PE 375—Personal Health Problems (Women)	2	—
H&PE 380—Applied Anatomy	5	—
H&PE 460—Seminar	1	1
H&PE 465—Testing in Phys. Ed.	3	—
H&PE 490—Teaching of College Physical Education Activities	2	2
Electives: Other courses in the department	2	1
Notes: 1. Majors and minors substitute courses H&PE 115-116-117, 118-119-120 for courses 101-102-103, 201-202-203 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.		

HISTORY AND POLITICAL SCIENCE

	Teaching Major (50 credits)	Teaching Minor (35 credits)
Required Courses: 39 credits as follows:		
Hist. 101-102-103—Dev. of West. Civ.	15	15
Hist 251-252-253—U. S. History	12	12
Pol. S. 202-203—American Government	8	8
Pol. S. 231—International Relations	4	—
Electives: Must include 9 credits of upper division courses.		

HOME ECONOMICS

	Teaching Major (50-54 credits)	Teaching Minor (35 credits)
Required Courses:		
H Ec 102—Introduction to Personal and Family Living	3	3
H Ec 104—Introduction to Home Management	2	2
H Ec 141—Introduction to Foods	4	4
H Ec 155—Textile Selection	3	3
H Ec 157—Clothing Construction	3	3
H Ec 210—Household Equipment	3	3
H Ec 242—Meal Management	3	3
H Ec 246 or 346—Nutrition	4	4
H Ec 258—Clothing for the Family	3	—
H Ec 302—Home Planning	2	—
H Ec 303—Household Furnishings	3	3
H Ec 308—Problems of the Consumer	3	—
H Ec 310—Home Living Center	4	—
H Ec 311—Home Management	2	—
*H Ec 321—Methods of Teaching Home Ec.	4	4
H Ec 344—Food Conservation	2	—
H Ec 359—Applied Clothing Design	3	—
H Ec 366—Human Development	3	3
*Home Economics majors may take this as Education credit.		

JOURNALISM (Minor Only)

	Teaching Minor (31 credits)
Required Courses:	
Journ. 100—Introduction to Journalism	3
Journ. 127—Elementary Photography	3
Journ. 140—Introduction to Radio and Television	3
Journ. 196—Current Affairs	1
Journ. 270—Reporting	3
Journ. 290—History and Principles of Journalism	3
Journ. 316—School Publications	3
Journ. 360—Principles of Advertising	3
Journ. 363—Advertising Layout and Copy	3
Journ. 380—News Editing	3
Journ. 495—Editorial Writing	3

LIBRARY SERVICE (Minor Only)

	Teaching Minor (30 credits)
Required Courses: 12-16 credits as follows:	
Educ 343—Org. & Adm. of the School Library	3-4
Educ 344—Cataloging and Classification	3-4
Educ 345—Bibliography and Book Selection	3-4
Educ 346—Library Reference Materials	3-4
Electives: 14-18 credits from the following:	
Educ 347—Audio-Visual Aids	3
Educ 340—Children's Literature	4
Educ 441—Evaluation of School Library Service & Materials	2
Educ 442—Library Work with Children	4
Educ 444—Library Seminar	1-10
Educ 445—Library Practice	5
Engl 381—Literature for the High School Teacher	3

MATHEMATICS

	Teaching Major (45 credits)	Teaching Minor (30 credits)
Required Courses: 25 credits as follows:		
Math 151—Freshman Math I	5	5
Math 152—Freshman Math II	5	5
Math 153—Freshman Math III	5	5
Math 251—Sophomore Math I	5	5
Math 252—Sophomore Math II	5	—
Special Electives (at least one of the following courses):		
Math 301—Algebra for Teachers	5	5
Math 304—Geometry for Teachers	5	5
Other Electives: Additional courses in mathematics may be selected to complete the 45 credits for the teaching major and the 30 credits for the teaching minor. Students who have started on the Math 100, 113, 116, 121, 222, 223, sequence may not substitute courses listed above without permission of the department chairman. Upon satisfactory performance on a placement examination in Mathematics, Math 151 and 152 may be waived.		
*Teaching Major 60 credits as follows:		
*Teaching Minor 30 credits as follows:		
Required Courses:		
Music 111, 112, 113—Theory I	9	9
Music 241, 242, 243—Theory II	12	0
Music 135, 136, 137—Intro to Music Lit.	6	4
Music 231, 232 or 233—Conducting	6	3 231 only
Music 323, 324, 325—School Music (any 2 quarters)	6	3 1 qtr.
Applied Music—Major Field	12	5

	9 credits from the following	6 credits from the following
Electives:		
Music 114, 115, 116—Piano in class	3	3
Music 117, 118, 119—Voice in class	3	3
Music 125, 126, 127—Strings in class	3	3
Music 129 - 3 Quarters—Winds in class	3	3
*All majors and minors must demonstrate piano ability equivalent of 3 quarters of piano study (private or in class).		

SCIENCE

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

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

BIOLOGICAL SCIENCE

	Teaching Major (47-48 credits)	Teaching Minor (31-32 credits)
Required Courses:		
Bact 200—Elementary Bacteriology	3	—
Bot 121-122—General Botany	10	10
Bot 123 or 124—Spring or Summer Flora	3-4	3-4
Bot 225 or 341—Plant Phys. or Morph. of Thall.	5	—
Gen 300—Conservation of Natural and Human Resources	3	—
Zool 104—Elementary Zoology	5	5
Zool 105—Elementary Zoology	5	—
Zool 106—Field Zoology	3	3
Zool 201—Comp Vertebrate Anatomy	5	5
Zool 202—Human Physiology	5	5

Students who offer the teaching major in biological science must have taken 15 credits of chemistry.

PHYSICAL SCIENCE

	Teaching Major (50 credits) as follows:	Teaching Minor (35 credits) as follows:
Required Courses:		
Chem 101-102-103—General Chemistry	15	15
or 121-122-123—College Chemistry	—	—
Geol 101—Introduction to Geology	5	—
Phys 111-112-113—General Physics	15	15
or 221-222-223—General Physics	—	—
Elective courses from chemistry, geology, physics	15	5

GENERAL SCIENCE (Major Only)

	Teaching Major (64-65 credits)
Required Courses:	
Bot 121-122—General Botany	10
Bot 123 or 124—Spring or Summer Flora	3-4
Chem 101-102-103—General Chemistry	15
or 121-122-123—College Chemistry	—
Gen 300—Conservation of Natural & Human Resources	3
Geol 101—Introduction to Geology	5
Phys 111-112-113—General Physics	15
Zool 101—General Zoology	5
Zool 106—Field Zoology	3
Zool 202—Human Physiology	5

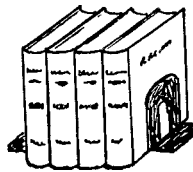
SOCIAL SCIENCES (Major Only)

	(65 credits) 49 credits as follows:
Required Courses:	
Econ. 201-202-203—Principles of Economics	9
Hist. 101-102-103—Development of Western Civilization	15
Hist. 251-252-253—U. S. History	12
Pol. S. 202-203—American Government	8
Soc. 101—Introductory Sociology	5
Electives: Limited to upper division courses approved by the advisor; must include one upper division course in Sociology	
	16

SPEECH (Minor Only)

	(30 credits)
Required Courses:	
Speech 111—Principles of Speech	5
Speech 118—Voice and Diction	3
Speech 214—Discussion Techniques	3
Speech 241—Radio-Television Speech	3
Speech 261—Beginning Oral Interpretation	3
Speech 267—Debate	2
Speech 321—Teaching of Speech	3
Speech 330—Introduction to Speech Pathology	3
Electives in Speech	5

ENGLISH courses prepare the student in the fields of literature, creative writing composition, and teaching. Through separate schedules, he is allowed to emphasize that part of 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, teach in foreign countries, work in magazine or book publishing, do library work, or wish to sense and study the great currents of thought throughout the centuries.

Creative writing and composition are emphasized for those who wish simply to express themselves well, and for those who become interested in the writing of poetry, drama and fiction, or who 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.

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

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN ENGLISH. In addition to the general requirements for graduation listed earlier in the guidebook, the student seeking the degree of Bachelor of Arts with a major in English must complete a minimum of 50 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 planning to teach in the secondary schools. By the beginning of his junior year the student should have decided definitely which of the schedules he is to follow.

Special comprehensive examinations must be taken and a paper submitted by all students working for honors in English. Any incoming senior who has a university index in his studies of at least 3.00 may become a candidate for honors.

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

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

- I. All prospective English majors are expected to take English 101-102-103. In addition, they are expected to take, in their freshman year, the introduction to Humanities (General 151-152-153), 5 credits of which will be counted toward the English major.
- II. All students are expected to take, in addition, English 201; English 342 or 343 and two quarters in one sequence and one in the other from English 211-212-213, and 231-232-233.
- III. Students who are hoping to go on to do graduate study in English should supplement the above courses with the following required minimum.

SCHEDULE A: LITERATURE

English 385 (Chaucer); 3 credits from 491-492-493; 498-499. The remaining credits required for the completion of the minimum 50 may be selected from courses in English, American, or General Literature numbered above 200. 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 guided practice in writing, a working knowledge of modern techniques, and a foundation in critical self-appraisal.

REQUIREMENTS. In addition to the basic departmental requirements:

SOPHOMORE YEAR

English 211-212-213 and 231-232-233; 3 credits may be taken from one sequence and 3 from the other; 202-203.

JUNIOR AND SENIOR YEARS

English 301-302-303, 305; 3 credits from 310-311-312, 341-342-343, 491-492-493; 401-402-403; 498. The 5 credits allowed beyond the 55 credits above may be taken from the courses in English Literature numbered above 300.

SCHEDULE C: TEACHING

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

English 211-213, 232-233, Speech 111 or 261. English 342 or 343, 371, 381, 481, 498-499.

Electives: 10 credits in the related fields below. Other electives may be chosen from courses in the Department of English, from courses in General Literature numbered above 200, and from the Related Fields. Among electives must be one course in American Literature and one British Literature.

Related Fields: Drama 321 (strongly recommended), 101, 121, 131, 243, 251; Journalism 127, 270, 316, 380; Speech 111, 112, 118, 214, 261, 321.

IV. The foreign language requirement listed earlier in the guide-book must be satisfied. Art 231-232-233; Music 135-136-137; Psychology 240; Philosophy 201-202, 100 and 340, plus at least two quarters of study in sociology and history (especially 241-242-243) are strongly recommended.

COMPOSITION, LANGUAGE AND LITERATURE FOR UNDERGRADUATES

For explanation see Index under "Symbols"

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

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

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

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

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

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

201-202-203 (30abc) ADVANCED COMPOSITION AND CREATIVE WRITING 3Q A W S Su 3. Enter any quarter. Prereq 104-105 or 101-102-103. (201) Expository writing; (202) Short fiction; (203) Techniques of poetry.

211-212-213 (58abc) 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) Shakespeare through Milton; (212) Dryden through Blake; (213) Wordsworth through Yeats.

231-232-233 (59abc) 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 Dickinson; (233) Twain through Hemingway.

301-302-303 (103abc) CREATIVE WRITING 3Q A W S 2. Enter any quarter. Prereq 107 and 202 or 106 or c/i. Fiction, with emphasis on the short story. Longer fiction requires a working plan, sample chapters, and c/i.

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

306 (102) THE WRITING OF DRAMA 1Q A W S 2 R-6 Prereq 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.

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

FOR UNDERGRADUATES AND GRADUATES

305 (164) TECHNIQUES OF THE MODERN NOVEL 1Q A 3. The intentions and methods of such innovators as Conrad and Faulkner. Author content variable. Primarily for advanced students in the creative writing schedule, but also to aid the reading awareness of advanced students in the literary and teaching schedules.

307-308-309 (177abc) THE DRAMA 3Q A W S Su 3 Given 1959-60 and alternate years. Enter any quarter. Prereq 9 cr of Literature or c/i. (307) Periods of world drama. (308) Drama since Ibsen, in England and in Europe. (309) Contemporary American Drama.

310-311-312 (104abc) THE NOVEL 3Q A W S 3. Enter any quarter. Prereq 9 credits of literature. A chronological survey of the novel, by major British and American authors. (310) Eighteenth century. (311) Nineteenth century (312) Twentieth century.

331-332-333 (162abc) STUDIES IN AMERICAN LITERATURE 3Q A W S Su 3 Prereq 9 credits in literature. Major American writers. (331) American Renaissance; (332) American Realism; (333) Modern American writing.

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

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

344-345 (178ab) 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 reading of representative plays from Aeschylus to the modern dramatists. (344) Tragedy; (345) Comedy.

371-372-373 (187abc) THE ENGLISH LANGUAGE 3Q W S Su 3. (371) Structure of Modern English (W Su). Phonological and grammatical structure from a modern linguistic point of view. (372) Old English (S). Phonological and grammatical structure of Old English and simple readings. (373) History of the English Language (S). (372) alternates with (373).

383-384-385 (165abc) BRITISH LITERATURE: MEDIEVAL PERIOD 3Q A W S Su 3. Enter any quarter. Prereq 12 cr of literature.

386-387-388 (171abc-174a) BRITISH LITERATURE: RENAISSANCE TO 1660 3Q A W S Su 3. Enter any quarter. Prereq 12 cr of literature.

389-390-391 (174b) BRITISH LITERATURE: RESTORATION AND EIGHTEENTH CENTURY 3Q A W S Su 3. Enter any quarter. Prereq 12 cr of literature.

392-393-394 (174c-179-180abc) BRITISH LITERATURE: NINETEENTH CENTURY TO 1870 3Q A W S Su 3. Enter any quarter. Prereq 12 cr of literature.

395-396-397 BRITISH LITERATURE: RECENT 3Q A W S Su 3. Enter any quarter. Prereq 12 cr of literature. Major figures in prose and verse from 1870 to the present.

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

401-402-403 (160abc) ADVANCED CREATIVE WRITING 3Q A W S 2, Su 1. Enter any quarter. Prereq 301-302-303 or c/i. Fiction, with emphasis on the novel, although work in the short story may be continued with c/i. (Graduate students may substitute 1 q of Drama 541.)

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

423-424-425 (193ab) POETRY 3Q A W S Su 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.

481 (105) METHODS OF TEACHING ENGLISH 1Q S only 4. Objectives, materials and organization of the curriculum from grades 7 through 12; observation of expert teachers; some practice in teaching and in correcting student themes. Does not count in curricula A and B. Credit not allowed for this course and the identical course Educ 481.

491-492-493 (169abc) LITERARY CRITICISM 3Q A W S Su 3. Enter any quarter. Prereq 12 credits in literature. Practice in first-hand independent analysis and evaluation of literature. (491) Training in student practice of criticism. (492) Major critical texts in the contemporary world in relation to practice. (493) Major critical texts of the past in relation to their own age and to the present.

495 (198abc) INDEPENDENT STUDIES 3Q A W S Su 2 R-8. Work in several fields of literature. For English seniors and graduate students, particularly seniors who are seeking honors. 498-499 (199ab) SEMINAR 2Q A W Su 2. First instruction and practice in research, with creative project permitted, with consent of advisor, for students in schedule B.

FOR GRADUATES

500-501-502 SEMINAR: PROBLEMS IN LITERATURE. Enter any quarter. V R-18. Studies in British and American Literature offered from various points of view. (500) a period; (501) a person; (502) a genre.

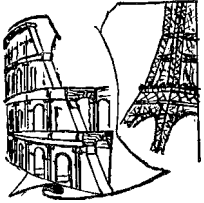
506 WORKSHOP 1Q Su only V R-10 Prereq teaching experience and c/i.

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

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

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

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

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 103; 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 90 credits in all foreign languages may be counted toward the Bachelor of Arts degree. The total number of credits for a major in a foreign language varies with the student's high school preparation. Specific requirements are set forth below in connection with each language.

FRENCH

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

1. French 101 to 217 inclusive, or =.
2. At least 19 credits from courses numbered 300 or over.
3. Four quarters, or =, of another language.
4. Two quarters in history of Europe, chosen from the following: History 207 or 208, 210, 211, 215-216, 314, 318 and 328.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

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

FOR UNDERGRADUATES AND GRADUATES

- 300 (101) FRENCH CONVERSATION 1Q a/q 1 R-3 Prereq 217.
- 301-302-303 (103 abc) SURVEY OF FRENCH LITERATURE 3Q A W S 2 Prereq 217.
- 305 ADVANCED FRENCH PHONETICS 1Q S Su 2 Prereq 217 or =.
- 311 (105) MEDIEVAL FRENCH LITERATURE 1Q A 3 o/y Prereq 217.
- 321 (107) FRENCH RENAISSANCE 1Q W 3 e/y Prereq 217.
- 331 (109) 17th CENTURY FRENCH LITERATURE 1Q S 3 e/y Prereq 217.

341 (111) 18th CENTURY FRENCH LITERATURE 1Q A 3 e/y Prereq 217.

351 (113) 19th CENTURY FRENCH LITERATURE 1Q W 3 o/y Prereq 217.

361 (115) CONTEMPORARY FRENCH LITERATURE 1Q S 3 o/y Prereq 217.

491 (125) SEMINAR 1Q a/q V 2-3 R-15 Prereq 217. Works of outstanding writers.

FOR GRADUATES

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

GENERAL LITERATURE

161 (51) 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 (151) FOREIGN LITERATURES IN TRANSLATION 1Q A W S Su 2 R-6 Works of foreign authors in English translation. Periods and literatures vary from quarter to quarter. No knowledge of foreign languages necessary.

440 (153) 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 guidebook.

1. German 101 to 217 inclusive, or =.
2. At least 19 credits from courses numbered 300 or over.
3. Four quarters, or =, of another language.
4. Two quarters in history of Europe, chosen from the following: History 207 or 208, 210, 211, 215-216, 314, 321 or 322.

FOR UNDERGRADUATES

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

FOR UNDERGRADUATES AND GRADUATES

- 300 (101) GERMAN CONVERSATION 1Q a/q 1 R-3 Prereq 217.
- 301-302-303 (103abc) SURVEY OF GERMAN LITERATURE 3Q A W S 2 Prereq 217.
- 341 (105) 18th CENTURY GERMAN LITERATURE 1Q A 3 o/y Prereq 217.
- 351 (107) 19th CENTURY GERMAN LITERATURE 1Q A 3 e/y Prereq 217.

491 (125) SEMINAR 1Q a/q V 2-3 R-25 Prereq 217. Works of outstanding writers.

FOR GRADUATES

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

GREEK

No major is given in Greek.

- 101 (11a) ELEMENTARY GREEK 1Q W Su 5.
- 102 (11b) ELEMENTARY GREEK 1Q S 5 Prereq 101.
- 103 (11c) ELEMENTARY GREEK 1Q A Su 3 Prereq 102.
- 213 (13) INTERMEDIATE GREEK 1Q W 3 Prereq 103.
- 215 (15) ADVANCED GREEK 1Q S 3 Prereq 213.

ITALIAN

No major is given in Italian.

- 101 (11a) ELEMENTARY ITALIAN 1Q A 5.
- 102 (11b) ELEMENTARY ITALIAN 1Q W 5 Prereq 101 or =.
- 103 (11c) ELEMENTARY ITALIAN 1Q S 5 Prereq 102.
- 213 (13) INTERMEDIATE ITALIAN 1Q A 4 Prereq 103.
- 215 (15) 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 guidebook.

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

FOR UNDERGRADUATES

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

FOR UNDERGRADUATES AND GRADUATES

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

FOR GRADUATES

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

ROMANCE PHILOLOGY

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

RUSSIAN

No major is given in Russian.

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

SPANISH

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

1. Spanish 101 to 217 inclusive, or =.
2. At least 19 credits from courses numbered 300 or over.
3. Four quarters, or =, of another language.
4. History 285-286-287 or two quarters of this course and History 328.

FOR UNDERGRADUATES

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

FOR UNDERGRADUATES AND GRADUATES

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

- 351 (111) 19th CENTURY SPANISH NOVEL 1Q A 3 o/y Prereq 217.

- 353 (113) 19th CENTURY SPANISH DRAMA 1Q W 3 e/y Prereq 217.

- 361 (117) CONTEMPORARY SPANISH DRAMA 1Q A 3 e/y Prereq 217.

- 363 (119) CONTEMPORARY SPANISH NOVEL 1Q W 3 o/y Prereq 217.

- 371-372 (115ab) 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.

- 481 (127) SEMINAR IN SPANISH-AMERICAN LITERATURE 1Q a/q V 2-3 Prereq 217.

- 491 (125) SEMINAR IN SPANISH LITERATURE 1Q W S V 2-3 R-15 Prereq 217.

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

THE TEACHING OF FOREIGN LANGUAGES

- 391 (102) 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.

- 401 (S104) FOREIGN LANGUAGE WORKSHOP 1Q Su 3 Prereq c/1. New methods and techniques in foreign language instruction. Credit not allowed for this course and identical course, Educ. 401.

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 or Wildlife 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 and Forest Engineering as their field of specialization will spend their sophomore spring quarter in camp on the Lubrecht Forest and their senior spring quarter on a field trip in the western states and in camp near Thompson Lakes. Those selecting Range and Wildlife Management will spend the spring quarter of their sophomore year in camp on the Lubrecht Forest, and their senior spring quarter on extended field trips through the western states.

Graduates find positions in state and federal government service for work in public forests or in conservation 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 algebra and geometry.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN FORESTRY. A minimum of 192 credits of work, not including credits obtained by required work in Military Science and Physical Education.

To continue as majors in the School of Forestry during the

second, third and fourth years, students must have and maintain a grade point average of 2 on all credits for which registered and for which a final grade is received.

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

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

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

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

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

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

FIELD COURSE EXPENSE DEPOSITS. The following field course expense deposits will be charged for advanced courses in the School of Forestry: 200, \$5.00; 210, \$2.00; 230, \$5.00; 251, \$5.00; 253, \$5.00; 290, \$3.00; 291, \$3.00; 311, \$5.00; 312, \$3.00; 330, \$1.00; 352, \$10.00; 370, \$3.00; 401, \$50.00; 411, \$5.00; 443, \$30.00; 452, \$10.00; 453, \$10.00; 455, \$15.00; 465, \$50.00; 470, \$5; 471, \$5.00; 472, \$10.00; 473, \$50.00; 481, \$10.00; 490, \$1.00. \$2.75 per quarter for all sophomores, juniors, and seniors for trip insurance.

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.

First Year

	A Cr.	W Cr.	S Cr.
For 190-1-2—Survey of Forestry	1	1	1
Bot 111—Forest Botany		5	
Bot 123—Spring Flora			3
Chem 101-2-3—General Chemistry	5	5	5
Eng 104-5—Freshman Composition	5	5	
Math 151—Freshman Mathematics			5
Sp 111—Principles of Speech	5		
H&PE 101-2-3—Physical Education	1	1	1
ROTC 101-2-3—Military or Air Science	2	2	1
	or 2	1	2
	19	18-19	16-17

Second Year

Autumn: For 210, 252, 290; Physics 111, H&PE 201; ROTC 201. Winter: For 250, 291; Bot 225; H&PE 202; ROTC 202; Electives. Spring: For 200, 230, 253; Bot 250; ROTC 203; Econ 201.

Third Year

Autumn: For 300, 310, 360; Jour 334. Winter: For 301, 330, 340, 352; Electives. Spring: For 311, 312; Bot 370; Electives, H&PE 203; Speech 111.

Fourth Year

Autumn: For 420, 441, 453; Econ 202; Elective. Winter: For 400, 421. Spring: For 401, 410, 456.

Students who are interested in specific areas of forest management may, with the adviser's consent, substitute from the following list, courses pertaining to these areas: Silviculture: For 411, 412, 484; Fire Control: For 331, 490; Physics 112; Forest Recreation: For 285, 385, 387, 388; Conservation: For 380, 480, 481, 482; Watershed Management: For 450, 484; Policy and Administration: 422 and 423.

FOREST ENGINEERING

First Year

Autumn: For 190; Chem 101; Eng 104; Math 151; H&PE 101; ROTC 101. Winter: For 191; Bot 111; Chem 102; Math 152; H&PE 102; ROTC 102. Spring: For 192; Bot 123; Chem 103; Eng 105; H&PE 103; ROTC 103.

Second Year

Autumn: For 210, 252, 290; Physics 111; H&PE 201; ROTC 201. Winter: For 250; Bot 225; Econ 201; Phys 112; H&PE 202; ROTC 202. Spring: For 200, 230, 253, 291; Bot 250; H&PE 203; ROTC 203.

Third Year

Autumn: For 441; Econ 202; Eng 304; Geol 101; H&PE 203. Winter: For 330, 352; Speech 111; Electives. Spring: Math 153; Physics 113; Psych 110; Electives.

Fourth Year

Autumn: For 300, 310; Math 251; Electives. Winter: For 301, 340, 353, 354, 442, 450; Electives. Spring: For 311, 350-1; Psych 343; Electives.

Fifth Year

Autumn: For 360, 420, 452, 454. Winter: For 400, 421, 455, 457. Spring: For 401, 456.

WOOD UTILIZATION

Second Year

Autumn: For 210, 252, 290, Phys. 111; H&PE 201; ROTC 201. Winter: For 250, 291; Bot 225; Phys 112; H&PE 202; ROTC 202. Spring: For 200, 230; Phys 113; H&PE 203; ROTC 203; Electives.

Third Year

Autumn: For 300, 310, 360; Econ 201. Winter: For 330, 340; Chem 260; Psych 110. Spring: For 311, 341, 342; Bot 370.

Fourth Year

Autumn: For 420, 440, 441, 451; Elective. Winter: For 353, 400, 421, 442. Spring: For 443; Bot 334; B Ad 360; Psych 343.

RANGE MANAGEMENT

Second Year

Autumn: For. 210, 252, 290; Phys 111, H&PE 201; ROTC 201. Winter: For 250; Bot 225; Econ 201; Psych 110; H&PE 202; ROTC 202. Spring: For 200, 230, 253, 291; Bot 250; ROTC 203.

Third Year

Autumn: For 300, 310, 360; Zool 101. Winter: For 352, 370; Bot 366; H&PE 203. Spring: For 311, 361; Bot 370; Electives.

Fourth Year

Autumn: For 420, 441, 460; Jour 334. Winter: For 330, 400, 421, 461. Spring: For 462, 463, 464, 465; Electives.

WILDLIFE MANAGEMENT

Second Year

Autumn: For 210, 252, 290; Zoo 101; H&PE 201; ROTC 201. Winter: For 250, 291; Bot 225; Econ 201; Psych 110; H&PE 202; ROTC 202. Spring: For 200, 230; Bot 250; Zoo 201; ROTC 203.

Third Year

Autumn: For 300, 310, 360; Zoo 101; H&PE 203. Winter: For 330, 352, 370; Bot 366. Spring: For 311; Jour 334; Zoo 201; Bot 370.

Fourth Year

Autumn: For 420, 441, 460; Zoo 309. Winter: For 400, 421, 470, 472 or Zoo 350. Spring: For 385, 471; Zoo 308.

CURRICULA LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN FOREST CONSERVATION

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 agency. 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 with 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. Some positions 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.

First Year

	A Cr.	W Cr.	S Cr.
Bot 111-2—Forest Botany		5	5
Chem 101-2-3—General Chemistry	5	5	5
Eng 104-5—Freshman Composition	5	5	
For 190-1-2—Survey of Forestry	1	1	1
Math 151—Freshman Mathematics			5
Speech 111—Prin. of Speech	5		
H&PE 101-2-3—Physical Education	1	1	1
ROTC 101-2-3—Military or Air Science	2	2	1
	19	19	18

FOREST RECREATION

Second Year

Autumn: For 210, 252, 290; Zoo 101; H&PE 201; ROTC 201. Winter: Econ 201; For 250, 285, 291; Psych 110; H&PE 202; ROTC 202. Spring: Bot 225; 355; Zoo 201; H&PE 203; ROTC 203.

Third Year

Autumn: For 310, 360, 380; Geol 101; Electives. Winter: For 330, 352, 387, 388, Geol 102; Electives. Spring: For 385; Geol 130; Jour 334; Soc Wel 363; Zoo 365; ROTC or Electives.

Fourth Year

Autumn: Anthrop 361; For 422, 482; Zoo 309; Electives. Winter: For 370, 484; Pol Sci 362; Electives. Spring: For 312, 361, 423, 499; Zoo 308; Electives.

RANGE CONSERVATION

Second Year

Autumn: Econ 201; For 210, 252; Phys 111; H&PE 201; ROTC 201. Winter: Bot 225; Econ 202; For 250; Psych 110; H&PE 202; ROTC 202. Spring: Bot 355, 365; For 253; H&PE 203; ROTC 203.

Third Year

Autumn: For 360, 482; Geol 101; Jour 334. Winter: Bot 366; For 352, 370; Electives. Spring: For 309, 361, 411; Electives.

Fourth Year

Autumn: For 460, 591; Electives. Winter: For 461, 472, 480, 484, 592. Spring: For 462, 463, 464, 465.

SOIL AND WATER CONSERVATION

Second Year

Autumn: Econ 201; For 210, 252; Phys 111; H&PE 201; ROTC 201. Winter: Bot 225; Econ 202; For 250; Psych 110; H&PE 202; ROTC 202. Spring: Bot 355; Econ 203; For 230, 253; H&PE 203; ROTC 203.

Third Year

Autumn: For 360, 380; Geol 101; Electives. Winter: Bot 366; Econ 380; For 352, 370; Electives. Spring: Bot 365; For 361, 411; Jour 334; Electives.

Fourth Year

Autumn: For 422, 460, 482, Electives. Winter: For 461, 480, 484; Pol Sci 362; Electives. Spring: For 309, 481, 499; Electives.

WATERSHED MANAGEMENT

Second Year

Autumn: For 210, 252, 290; Physics 111, H&PE 201; ROTC 201. Winter: Bot 225; For 250, 291; Math 152; H&PE 202; ROTC 202. Spring: Bot 250; Econ 201; For 200, 230, 253; ROTC 203.

Third Year

Autumn: For 300, 310, 360; Geol 110. Winter: For 201, 301, 352, 450, 490; Phys 112. Spring: For 311, 464; Phys 113; Electives.

Fourth Year

Autumn: For 420, 441, 482; Geol 200; Electives. Winter: For 401, 421, 484; Geol 202. Spring: For 456, 481; Geol 203.

WILDLIFE CONSERVATION

Second Year

Autumn: For 210, 252, 290; Zoo 101; H&PE 201; ROTC 201. Winter: Econ 201; For 250, 285, 291; Psych 110; H&PE 202; ROTC 202. Spring: Bot 225, 355; Zoo 201; H&PE 203; ROTC 203.

Third Year

Autumn: For 310, 360; Zoo 309; Electives. Winter: Bot 366; For 352, 370; Pol Sci 362; Electives. Spring: Econ 202; For 385; Zoo 308; Electives.

Fourth Year

Autumn: For 460; Electives. Winter: For 470, 472, 480; Electives. Spring: For 471, 481, 499; Electives.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

50 (10) SLIDE RULE 1Q a/q 0 (3-0) Prereq Math 100 and 113 or concurrent registration. Use of the Dietzgen, Multilog, Multiplier rule in the solution of mathematics problems commonly encountered in the field of Forestry.

190-191-192 11abc) 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 (22) 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 measure-

ments, including site determination, tree form, volume tables, timber cruising, log scaling, forest mapping and growth determination.

210 (25) SOILS 1Q A 4 (3-4) Prereq Chem 101-102-103 or =. Soils of forest and range land; morphological, physical, and chemical properties; soil erosion control.

230 (24) ELEMENTS OF FOREST PROTECTION 1Q S 3 (3-0) Prereq sophomore standing, Bot 111 and For 290-291. Protection of the forest against enemies other than fire and disease; insects, wildlife, man, grazing, and climatic factors.

250 (12) MAPPING 1Q W 2 (0-4). Line drawing and lettering. Methods of map and chart construction from basic survey data. Map composition and coloring. Use of conventional signs and symbols. Fundamentals of topographic mapping.

251 (21) PLANE TABLE SURVEYING 1Q S 5 (2-6) Prereq Math 113 or 151. Care and use of plane table telescopic alidade and rod. Introduction to differential leveling, stadia surveying, plane table survey methods. Adjustment of horizontal and vertical controls. Topographic map construction. Primarily for anthropology and geology majors, not for forestry and wildlife majors.

252-253 (20ab) SURVEYING 2Q A 4 (0-8), S 5 (2-8) Prereq Math 113 or 151 with a grade of C or better 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 transit, stadia, and plane table surveys, public land survey methods; (253) instrument adjustment. Establishment of a triangulation, horizontal and vertical controls by transit and level. Topographic surveys and maps obtained by various combinations of instruments. Solar observations Introduction to earthworks.

285 FOREST AESTHETICS 1Q W 2 (1-2) Prereq sophomore standing in the School of Forestry and c/i. Appreciation of natural landscape values. State, national parks and wilderness areas involving the principles of recreational planning. Field trips.

290-291 (26ab) DENDROLOGY 2Q A W 3 (2-3) Prereq sophomore standing in the School of Forestry and c/i. 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 AND GRADUATES

300-301 (110ab) FOREST MENSURATION 2Q A W 4 (3-3) Prereq 200. (300) The application of statistical methods to forest mensuration; (301) Analysis and presentation of field data for volume tables and methods of yield analysis and their computations.

309 (108) FARM FORESTRY 1Q S 3 (2-4) Prereq junior standing in the School of Forestry. The application of the principles of forest mensuration, management, silviculture and soils to small woodland holdings.

310 (105) SILVICS 1Q A 4 (4-0) Prereq Bot 225 and 250. The foundations of silviculture upon an ecological basis. The effects of climatic, edaphic, and biotic factors on the growth and development of trees and stands. The influence of the forest upon the site. Principles underlying the regeneration, care, and protection of forest stands.

311 (107) SILVICULTURAL METHODS 1Q A 5 (4-4) Prereq 310. The production of forest crops; reproduction methods, intermediate cuttings, and cultural operations. Field trips.

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

330 (114) FOREST FIRE CONTROL 1Q W 4 (4-0) Prereq 252. Forest fire prevention, pre-suppression, and suppression, weather influences, fire behavior. The organization, education and training of personnel. Mechanics and use of fire control machinery. Theory and use of electronic aids.

331 (117) 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, and fire prevention techniques.

340 (115) WOOD TECHNOLOGY 1Q W 4 (3-3) Prereq 291 or c/i. Wood identification and anatomy: Introducing the relationships of the physical, chemical, and mechanical properties to specific uses.

341 (124) CHEMICALLY DERIVED WOOD PRODUCTS 1Q S 3 (3-0) Prereq Chem 260 or = and For 340. Generalized chemistry of wood. Survey of chemically derived products and processes including Naval Stores, pulp, paper and modified woods.

342 (132) WOOD GLUING AND PHYSICAL PROPERTIES 1Q S 3 (3-0) Prereq 340 and junior standing in the School of Forestry. Theory and practice of wood gluing. Familiarization with glues, and glued wood construction. Bent wood, painting and finishing, nail holding capacity, insulation values, and other physical properties.

350-351 (113ab) ADVANCED SURVEYING 2Q W S 2 (0-4) Prereq 250, 252-253, and c/i. (350) Simple curve definitions, their theory and use; (351) selected topics of surveying not covered in For 252-253.

352 AERIAL PHOTOGRAMMETRY 1Q W 3 (1-4) Prereq Math 151 or =. The elements of photogrammetry and their applications with emphasis on the measurement of forest variables. Application of photographic methods to planimetric and topographic mapping. Introduction to the principles of photo interpretation.

353 (137) TIMBER MECHANICS 1Q W 3 (0-8) Prereq Physics 111. Graphic and analytic statics applied to simple structures; simple beam and truss design; use of timber connectors.

354 APPLIED AERIAL PHOTO INTERPRETATION 1Q S 3 (0-6) Prereq 352 and c/i. Co-ordinated work between laboratory and field. Map compilation, cover and type mapping, mensurational techniques, and topics of individual interest.

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

361 (121) RANGE FORAGE PLANTS 1Q S 4 (0-8) Prereq 360, Bot 366 and c/i. Economic range of forage plants; forage value to different kinds of range animals; management problems in their use.

370 (138) GENERAL WILDLIFE MANAGEMENT 1Q W 4 (4-0) Prereq c/i. The management of wildlife as a land resource.

380 (101) THE RENEWABLE RESOURCES AND THEIR CONSERVATION 1Q A W 3 (3-0) Prereq 210 and Bot 250. The interrelationships 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 economy. Conservation practices and facilities and the agencies involved in their application. (not open for doctoral credit)

385 INTRODUCTION TO FOREST RECREATION 1Q S 4 (2-6) Prereq c/i. Historical development, objectives and problems in the recreational use of forests and other wild lands. Class and field.

387 RECREATION UTILITIES 1Q W 3 (1-4) Prereq c/i. Theory and design of service and sanitary utilities for recreational areas. Laboratory and field.

388 RECREATIONAL STRUCTURES 1Q W 2 (1-3) Prereq c/i. Elementary design, fabrication and use of recreational structures, including ski runs, toboggan slides, fishing, boating, hunting, swimming, camping facilities. Laboratory and field.

400-401 (145ab) FOREST MANAGEMENT 2Q W 5 (5-0), S 10 (0-2 months fieldwork) (Forest Management trip, 3 cr.; Applied Forest Management, 7 cr.) Prereq 300-301, 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) Emphasis on field work necessary in applying forest management, timber cruising, determination of growth, and timber marking.

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

411 (102) FOREST SOIL CLASSIFICATION AND MAPPING 1Q S 4 (3-4) Prereq 210 and Geol 101. Classification of forest soils as natural bodies. Mapping of forest soils, land use classes, and forest site classes.

412 (106) ADVANCED FOREST SOILS 1Q S 3 (2-4) Prereq 210 and 310, Bot 225 and 250. Relationship of the chemical, physical, and biological properties of soils to forest tree growth.

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

421 (148) FOREST ECONOMICS 1Q W 5 (5-0) Prereq Econ 201 and For 420. Economic problems and principles involved in the use of the forest resource and in the distribution of forest products.

422 (150) LAND USE POLICY 1Q A 4 (4-0) Prereq c/i. The development of forestry and public land policies, especially in the United States. Policy objectives, programs, and groups.

423 (196) FOREST ADMINISTRATION 1Q S 2 (2-0). Principles and problems of organizing and dealing with personnel in executing private and public forest policies.

440 (125) MECHANICALLY DERIVED WOOD PRODUCTS 1Q A 3 (3-0) Prereq junior standing in the School of Forestry. History, status, developments in residue utilization. Relationships between utilization and timber production. Major uses of wood in the round form. Primary and secondary manufacturing processes and products. Minor forest products.

441 (126) SAWMILLING AND LUMBERING 1Q A 3 (2-4) Prereq junior standing in the School of Forestry. Various types of sawmill and planer operations, their organization and equipment. Lumber grades and uses. By-products and residue utilization. Past and present day trends and problems. Brief survey of drying operations.

442 (128) SEASONING AND PRESERVATION 1Q W 3 (3-0) Prereq junior standing in the School of Forestry. Principles involved in seasoning and preservation treatments of woods. Related wood anatomy. Application to present commercial practices.

443 (129) UTILIZATION FIELD 1Q S V Prereq junior standing, utilization major. Several weekend trips to study and observe full scale wood products industries on location.

450 (112) HYDRAULICS 1Q W 2 (2-0) Prereq c/i. Elementary study of the physical properties of water.

451 (131) MECHANICAL PROPERTIES OF WOOD 1Q A 3 (2-2) Prereq 340. Mechanical factors related to strength of wood; elementary graphic statics; timber testing.

452 (133) LOGGING 1Q A 3 (2-4) Prereq 310, 311. Equipment and methods of logging in the United States; calculation of logging costs; the effect of logging on other forest values; fundamentals of a logging plan. Field trips.

453 (134) LOGGING-ENGINEERING 1Q A 5 (4-4) Prereq 252-253, 311. Credit not allowed for this course and For 452. A survey of logging equipment and methods of use in the United States. Principles of road planning and location for forest development. Service course for non-engineering majors.

454-455-456 (136abc) FOREST ENGINEERING 3Q A W 4 (4-4), S 6 Prereq 252-253, 350-351. 454 and 455 are for engineering majors only. (454) Collection of field data for a logging plan. Location of main and spur roads (Field work). (455) Earthwork calculations, mass diagrams, estimates of road and logging costs necessary to complete the logging plan. (456) Prereq For 453 or 455. Application of forest engineering, methods and techniques, time and cost studies. (Field work).

457 TIMBER DESIGN 1Q W 4 (2-6) Prereq 353 and mathematics through Calculus. Forces in three dimensions; combined stresses; columns; design of simple beams for deflection; joint analysis using timber connectors; post and beam construction; and laminated wooden arches.

460 (139) RANGE TECHNIQUES 1Q A 4 (2-8) Prereq 360 and c/i. Range surveys, condition, and trend analysis, utilization analysis, damage appraisal. Field trips.

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

462 (141) RANGE LIVESTOCK PRODUCTION 1Q S 2 (2-0) Prereq 360 and c/i. Selection, production, and management of range livestock.

463 (142) RANGE ECONOMICS 1Q S 3 (3-0) Prereq 360, Econ 201 and c/i. Range regions from an economic standpoint. Ranch value and income, tenure, taxation, fees and leases, economic utilization of forage, economics of range improvements, ranch organization and appraisal.

464 (143) RANGE ADMINISTRATION 1Q S 2 (2-0) Prereq 360 and c/i. Legislation and policies developed in the acquisition of federal, state and private range properties. Administration, organization and methods for regulation of grazing on public lands.

465 (144) REGIONAL RANGE MANAGEMENT 1Q S 6 Prereq 460, 461, 462 and c/i. Regional range management problems and situations. Work done on senior spring trip.

470 (166) ADVANCED WILDLIFE MANAGEMENT 1Q W 5 (4-2) Prereq Zoo 308, 309 or 350; Bot 250 or 355 and c/i. The application of population dynamics, ecology and behavior of birds and mammals to management.

471 (167) WILDLIFE HABITAT MANAGEMENT 1Q S 5 (4-field weekends) Prereq 470 and c/i. May be taken concurrently with For 473. Principles and techniques involved in wildlife habitat manipulation, the effects of land and forest management practices on wildlife populations, the integration of overall land and wildlife management and the assessment of management success.

472 (168) BIG GAME MANAGEMENT 1Q W 3 (2-4) Prereq 360, 370 and c/i. A study of the habitat requirements of big game species. Competition between game and other land uses. Population control. Economic problems in big game management.

473 (169) FIELD WILDLIFE MANAGEMENT 1Q S 6 Prereq 471 or concurrent registration and c/i. Land and wildlife management practices on wildlife populations.

480-481 (171ab) RESOURCE MANAGEMENT AND CONSERVATION PLANNING 2Q W 4 (3-4), S 5 (3-3) Prereq Econ 201-202-203, For 310, 360, 482 and c/i. (480) Methods of analyzing and planning the multiple use management of renewable resources: the physical, economic, social, and political problems involved in integrating resource development. Possible alternative uses of resources as a basis of choice in conservation planning. (481) Emphasis on field work in working out problems of integrated resource management and developing conservation plans for selected land areas involving several land uses.

482 (170) SOIL AND WATER CONSERVATION 1Q A 4 (3-4) Prereq 411 and c/i. Principles and methods of soil and water conservation related to soil type, condition and land use. Field techniques in land use planning and application for soil and water conservation.

484 (180) WATERSHED MANAGEMENT 1Q W 5 (5-0) Prereq junior or senior standing and c/i. The controlling factors necessary for the intelligent application of sound management practices to watershed management. The movement and measurement of water, snow surveys, the applications of the principles of range, forest, and wildlife management to watersheds and their relationships to the control of soil erosion and water conservation.

490 (116) FOREST METEOROLOGY 1Q W 4 (4-0) Prereq Physics 111-112, junior standing in Forestry and c/i. The basic meteorological factors that influence fire behavior, the measurement of weather elements, and the preparation and use of weather forecasts.

491 (193) SENIOR SEMINAR 2Q A W V. A general review of the newer developments in the various fields of forestry.

499 (191) FORESTRY PROBLEMS 3Q a/q V Prereq completion of basic undergraduate work and c/i. Individual problem work. Offered by different instructors under various titles.

FOR GRADUATES

520 (195) PUBLIC ADMINISTRATION Extension course W V Prereq undergraduate degree from a college or university of recognized standing or consent of the Dean of the School of Forestry based on applicants' experience and competence. Intensive instruction in the fundamentals of sociology, psychology, speech, writing, business administration, public relations and related fields. One month, 20 hr. per week. Staff of university specialists in fields involved.

591-592 (192ab) RESEARCH METHODS 2Q W S 3. Enter either quarter. Prereq at least one course in statistics or statistical elements of forest measurement and c/i. (591) Scientific methods, application of statistical methods to the design of experiments, research techniques, organization of research projects. (592) Analysis and presentation of research results.

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

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

GENERAL COURSES

are offered as surveys or introductions to broad fields of learning, but there is no "general course" in which a degree is offered. Any University student is compelled to study in many fields as a matter of general education; and specialization in one curriculum, although required for a degree is strictly limited (see Graduation Requirements). But it has been found advisable to provide certain degree-curricula which overlap two or more of the curricula described

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

125 (25) PHYSICAL SCIENCE FOR TEACHERS 1Q A W Su 5. Open only to majors in Elementary Education. A survey of the physical aspects of the universe.

126 BIOLOGICAL SCIENCE FOR TEACHERS 1Q A S Su 5. Open only to majors in Elementary Education. A survey of the plant and animal kingdoms with special reference to the laws governing living things.

131-132-133 (13abc) 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 phyla. Comparative morphology and physiology within the principal animal phyla, with emphasis upon man. History and theory of evolution; evidences for evolution from all fields of biology; modern concepts of mechanism of evolution. Principles of bio-ecology and their implications to man in the field of conservation. Given by the departments of Botany and Zoology.

151-152-153 (15abc) 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 art and literature through the centuries from the Greeks to Americans, with the primary aims of understanding and appreciation. Given by the departments of English and Foreign Languages.

FOR UNDERGRADUATES AND GRADUATES

300 (100) CONSERVATION OF NATURAL AND HUMAN RESOURCES IN MONTANA 1Q W Su 3 Prereq c/i. The social need for improved conservation practices. A critical survey of climate, physiography, mineral resources, soil and water, as related to plant and animal production and human welfare, and the development of principles underlying improved management of the natural resources. A survey of human 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.

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

450 (150a) 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 161, 221, 241-242-243, 450, and 491-492-493 will be allowed toward a major in foreign languages.

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

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

FOR UNDERGRADUATES AND GRADUATES

307-308-309 (177abc) THE DRAMA. (See English.)

344-345 (178ab) THEORIES OF DRAMA. (See English.)

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

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

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

491-492-493 (169abc) 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 guidebook the following special requirements must be completed for the Bachelor of Arts degree with a major in Geography: A minimum of 50 credits in Geography including Geography 101, 201, 211, 212, 213, 300, 305, 360, 370, 380 and two of six Geography courses 301, 331, 335, 340, 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 Administration 344, Economics 344 and 380, Geology 310, Mathematics 111, Sociology 304, and Forestry 380.

The foreign language requirement listed earlier in the guidebook must be satisfied; French or German are strongly recommended unless the student intends to specialize in a part of the world where the use of some other language prevails.

CURRICULUM IN GEOGRAPHY

	A Cr.	W Cr.	S Cr.
Freshman Year			
Eng 101-102-103—Freshman Composition	3	3	3
ForL 101-102-103—Elementary French or German	5	5	5
Geol 110—General Geology	5		
Elective Group I or III		5	5
H&PE 101-102-103—Freshman Physical Education	1	1	1
ROTC 101-102-103—Military or Air Science	2	2	1
	or 2	1	2
	16	15-16	15-16
Sophomore Year			
Econ 201-202-203—Principles of Economics	3	3	3
ForL 213—Intermediate French or German	4		
ForL 215—Advanced French or German		4	
Geog 101—Elements of Geography	5		
Geog 211-212-213—Economic Geography	3	3	3
Soc 101—Elementary Sociology			5
Electives Group I or III		3	3
H&PE 201-202-203—Sophomore Physical Education	1	1	1
ROTC 201-202-203—Military or Air Science	2	2	1
	or 2	1	2
	18	15-16	16-17

Junior Year			
Geog 300—Geography of North America		3	3
Geog 305—Geography of Europe	3		
Geog 360—Climatology		5	
Geog 380—Cartography	3		
Hist 251-252-253—United States History	4	4	4
Pol S 202-203—American Political Institutions	4	4	
Electives in Geography		6	6
Electives		6	6
	14	16	16

Senior Year			
Geog 450—Seminar in Geography	2	2	
Electives in Geography	6	3	6
Electives	7	10	9
	15	15	15

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

101 (11) ELEMENTS OF GEOGRAPHY 1Q A W S Su 5. Field content and methodology of geography, with emphasis on the earth and planetary relations, maps, climate, landforms and population distribution.

201 MAP INTERPRETATION 1 Q A 3. Map and chart evaluation. The analysis of human and physical features on maps; progress, coverage, and quality of world mapping.

211-212-213 (Econ 17ab) ECONOMIC GEOGRAPHY 3Q A W S 3. (211) The industries producing food and raw materials; (212) the significance, structure, and distribution of manufacturing industries; (213) service industries with an emphasis on trade and transportation. A review of economic regions.

380 CARTOGRAPHY 1Q A 3. The interpretation, construction, and uses of important map projections. Cartographic techniques utilized in the presentation of data.

FOR UNDERGRADUATES AND GRADUATES

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

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

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

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

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

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

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

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

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

331-332 POLITICAL GEOGRAPHY 2Q A W 3. (331) The physical and cultural features of a state in relation to problems of unity and diversity; (332) The nature and scope of geopolitics. A geopolitical analysis of the United States and selected states in Europe and Asia.

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

340 LOCATION OF ECONOMIC ACTIVITY. (See Economics).

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

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

370 LANDFORM ANALYSIS 1Q S 3 Prereq 101 or =. Topographic elements of the earth's surface with emphasis on processes of morphologic change.

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

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

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

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

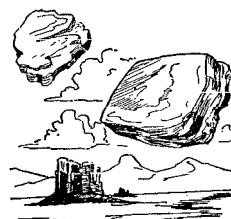
FOR GRADUATES

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

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

699 THESIS a/q V R-15.

GEOLOGY



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

The Bachelor of Arts degree, the Master of Arts (or Master of Science), and the Ph.D. degrees are offered (see Graduate School). Instruction involves the use of mineral, rock, and fossil collections, geologic and topographic maps, aerial photographs, optical and chemical methods, X-ray methods and many others. Nearly all courses include field work. Students are trained in mapping methods and general field investigation under actual working conditions. Such studies are accompanied by theoretical work as well as courses in other basic sciences.

Petroleum companies, governmental agencies, such as federal and state geological surveys, and mining companies are the chief employers of geologists.

CURRICULUM IN GEOLOGY

	A	W	S
	Cr.	Cr.	Cr.
Freshman Year			
Eng 104-105 (or 101-102-103)	5	5	
Chem 121-122-123	5	5	5
Geol 110, 120	5	4	
H&PE 101-102-103	1	1	1
Group II or III courses		1	10
ROTC 101-102-103	2	2	1
	or 2	1	2
	18	17-18	17-18
Sophomore Year			
Math 151-152-153	5	5	5
Geol 211-212, 220	4	4	4
Zoo 104-105	5	5	
Geol 130			3
H&PE 201-202-203	1	1	1
Group II or III courses or electives	2	2	4
ROTC 201-202-203	2	2	1
	or 2	1	2
	19	18-19	18-19
Junior Year			
Physics 111-112-113 or 221-222-223	5	5	5
Geol 200-202-203	4	4	4
ForL 101-102-103	5	5	5
Geol 330-331	3	3	
Electives			3
Geol 320 8cr (summer session)			
	17	17	17
Senior Year			
Geol 310	4		
Geol 325			3
Geol 461		1	
Eng 304	4		
ForL 213, 215	4	4	
Electives	5	12	13
	17	17	16

Analysis of Requirements

	Cr.
1. University requirements, (Eng 10 cr, Group II 12 cr; Group III 12 cr, ForL 23 cr, 8 of which can be applied toward Group III)	49
2. Geology course requirements	58
3. Other requirements (Math 15 cr, Chem 15 cr, Physics 15 cr, Zoo 10 cr, Eng 4 cr)	59
4. Military Science	10
5. Health and Physical Education	6
6. Electives	4
Total	186

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 guidebook the following requirements must be completed for the Geology curriculum: Geology 110, 120, 130, 200, 202-203, 211-212, 220, 310, 320, 3 cr of 325, 330-331, 461. Also required are Mathematics 151-152-153; Chemistry 121-122-123; Physics 111-112-113 or 221-222-223; English 304 and Zoology 104-105 or Mathematics 251-252. A foreign language, 23 credits 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 will be devised for these students in consultation with their advisor. This will, for example, allow special curricula planned for special areas of interest as geochemistry 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 310, 320, 461; Math 152, 153; Physics 111-112-113 or 221-222-223; Zoology 104-105; and English 304. 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 in the School of Law, provided the student is certified as having completed the work of the first year of Law to the satisfaction of the School of Law.

FIELD TRIP EXPENSES. Students enrolled in courses which include field trips share equally the cost of transportation and insurance. Students should consult the University Business Office for a statement of expenses connected with Geology 320 Field Geology.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

101-102 (11ab) **INTRODUCTION TO GEOLOGY 2Q A W** (Su 101 only) 5 (3-4). (101) 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/i. 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 this course and Geology 101-102.

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

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

150 **HISTORY OF LIFE ON THE EARTH 1Q W Night School** only 3 (3-0) Primarily for elementary and secondary teachers and interested adults. General evolutionary advances and history of plants and animals throughout geologic time. Lectures, demonstrations and films. Not allowed toward a geology degree.

200 **GENERAL PALEONTOLOGY 1Q A 4** (3-2) Prereq 110 or c/i. General principles of paleontology, evolution, and history of plants and animals.

202-203 (22abc) **HISTORICAL GEOLOGY 2Q W S 4** (3-2) Prereq 110, 200, Zool 104-105 recommended. (202) 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, fossil, library, and field exercises.

205 **INTRODUCTION TO VERTEBRATE PALEONTOLOGY 1Q A 4** (2-4) Prereq 200. Principles of vertebrate paleontology, vertebrate evolution; comparative laboratory examination of representative fish, amphibians, reptiles, mammals and birds.

211-212 (24ab) **MINERALOGY 2Q A W 4** (2-6) Prereq Chem 121 or concurrent registration. Elements of crystallography; classification and determination of common minerals by physical and chemical properties; special emphasis on ore and rock forming minerals.

220 (26) **PETROLOGY 1Q S 4** (2-6) Prereq 212. Common rocks, their mineral composition and physical characteristics, classification, identification in the field, origin and structural features.

461 (191) **SENIOR SEMINAR 1Q W 1** (2-0) Prereq senior standing in Geology.

FOR UNDERGRADUATES AND GRADUATES

300 (S112) **GEOLOGY OF MONTANA 1Q Su** only 3 (2-3) Prereq c/i. 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 (S113) **MONTANA MINERAL RESOURCES 1Q Su** only 3 (2-3) Prereq c/i. 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.

310 (120) **GEOMORPHOLOGY 1Q A 4** (3-3) Prereq 203, 220. Topographic features that comprise the landscape; their origin, development, and classification.

315 (126) **GROUND WATER GEOLOGY 1Q S 4** (3-3) Prereq 203, 220, Physics 113. Geologic and hydrologic conditions controlling occurrence and development of ground water; emphasis on conditions in Montana and vicinity.

320 (S130) **FIELD GEOLOGY 1Q Su** only 8 (5½ days per week for 6 weeks in the field) Prereq 130, 203, 220. 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 (137) **GEOLOGIC PROBLEMS 1Q a/q 1-5** Prereq 30 cr in Geology and c/i. Supervised investigation in any phase of geologic study in which the student has sufficient background to contribute original thought.

330-331 (121ab) **STRUCTURAL GEOLOGY 2Q A W 3** (2-4) Prereq 203, 220, Math 153, Physics 113 or 223 or concurrent registration. Structural features of earth's crust; their analysis by geometric and stereographic projections.

335 **PRINCIPLES OF SEDIMENTATION 1Q A 4** (3-2) Prereq 110, 220. Composition, texture, structure and classification of sedimentary rocks; related aspects of dispersal, lithification, diagenesis and provenance.

400-401 (101ab) **METALLIC MINERAL DEPOSITS 2Q A W 4** (3-2) Prereq 203, 220. Theoretical and practical aspects of nature, origin, classification and geologic environments of metallic mineral deposits.

405 (106) **NON-METALLIC MINERAL DEPOSITS 1Q S 4** o/y (3-2) Prereq 203, 220. Theoretical and practical aspects of nature, origin, classification and geologic environments of non-metallic mineral deposits.

410-411 (111ab) **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 (123) **OPTICAL MINERALOGY 1Q A 4** (2-6) Prereq 220, Physics 113 or 223, and Math 151. Use of polarizing microscope and accessories; theory of optical phenomena observed with microscope; identification of mineral fragments and minerals in thin section.

421 **MICROSCOPIC DETERMINATION OF OPAQUE MINERALS 1Q S 3 e/y** (3-0) Prereq 401, 420. Identification of minerals in polished sections by physical and microchemical tests. Theoretical and practical study of mineral paragenesis.

425-426 (124ab) **PETROGRAPHY 2Q W S 4** (2-6) Prereq 220, 420. (425) 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 thermodynamics and crystal chemistry as applied to formation and transformation of rocks.

430 (132) **PRINCIPLES OF STRATIGRAPHY 1Q A 3** (2-3) Prereq 130, 331, 410-411 recommended. Interrelationships of environment, tectonic controls, and facies, problems of correlation; isopach, facies, paleogeologic and paleogeographic maps; field work.

435 (134) **PETROLEUM GEOLOGY 1Q S 3** (3-0) Prereq 331 or c/i. Theories of origin, of stratigraphic and structural controls of occurrence; some of the problems associated with development.

440 **INTRODUCTION TO GEOPHYSICS 1Q S 3** (3-0) Prereq Physics 113, or 223, Math 153 or concurrent registration, Geol 331. Theory of commonly applied geophysical methods, including gravimetric, magnetic, seismic, electric and radiometric; emphasis on the interrelationships of geophysical anomalies and geologic structure. Geophysical case histories.

445 **X-RAY ANALYSIS 1Q A 3** (2-3) Prereq Physics 223. Theory of x-rays; their use in the identification of polycrystalline materials. Emphasis on Debye-Scherrer powder method and its modifications.

450 **X-RAY CRYSTALLOGRAPHY 1Q W 3** o/y (2-3) Prereq 445. X-ray crystallography and structural determination of single crystals by Weissenberg and other methods.

455 MARINE GEOLOGY 1Q W 4 (3-2) Prereq 110, Zool 105. Physical, Chemical, biological and geological aspects of the ocean and its floor.

460 HISTORY OF GEOLOGY 1Q A 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.

464-465-466 VERTEBRATE PALEONTOLOGY 3Q A W S 4 (2-4) Prereq Zool 201 or Geol 205 or c/i. (464) The lower vertebrates. Taxonomy, morphology, paleoecology, and geologic history of fishes, amphibians and reptiles e/y. (465) Taxonomy, morphology and geologic history of fossil mammals. o/y. (466) history and paleoecology of mammals and birds; emphasis on Rocky Mountain Cenozoic stratigraphy. o/y.

FOR GRADUATES

500 (207) ADVANCED SEDIMENTATION 1Q W 4 (3-3) Prereq 335, 420, 430. Formation of sedimentary rocks including origin of sediments, their transportation, deposition, compaction and lithification; concepts of size, shape, and roundness.

501 CLAY MINERALOGY 1Q S 3 (3-0) Prereq Chem 123, Geol 220, with 445 recommended. Crystal structure and composition of clay minerals; ion exchange reaction, clay-water systems, chemistry of formation of clay minerals.

505 (212) 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 (22) GEOTECTONICS 1Q S 3 e/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 (225) STRUCTURE OF MINERAL DEPOSITS 1Q S 3 e/y (3-0) Prereq 331. Classification of mineral deposits according to structural environment and features; special reference to origin as related to tectonic control.

520-521 PETROGENESIS 2Q W S 3 e/y (3-0) Prereq 426. Advanced discussion of modern theories of origin of igneous and metamorphic rocks.

590 GRADUATE SEMINAR 1Q A W S 1 (2-0) Prereq graduate standing in geology. Reports and discussions on original research and problems in geology.

595 ADVANCED GEOLOGIC PROBLEMS a/q V. Investigations of geologic problems.

600 (201) RESEARCH a/q V. Directed research in stratigraphy, paleontology, mineralogy, petrology, mineral deposits, geochemistry, sedimentation, tectonic analysis, and other phases of geology.

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

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, 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. Professional activity courses include training in teaching team games, individual and dual sports, gymnastics and tumbling, aquatics, and forms of the dance. Theory courses include structure and function of the human body, basic principles and teaching procedures, history and philosophy, and planning and administration of programs. Students interested in physical therapy and orthopedic rehabilitation may fulfill entrance requirements for approved schools 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 and practice in 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 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 field directors for the American Red Cross in the areas of first aid, life saving and water safety. Many elect careers in leadership positions in youth-serving organizations, in playground and recreation centers, in summer camps, in the armed forces, in industrial recreation, and in recreation in hospitals and rehabilitation centers.

SPECIAL REQUIREMENTS FOR 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 guidebook 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 in place of a foreign language: Home Economics 246, Psychology 230, Speech 111, and 8 credits from Sociology 101, 102, 204, 361, 362, 363, and 402. Requirements for both degrees are identical in all other aspects.

In addition to the general requirements for graduation listed earlier in the guidebook, the following special requirements must be completed: 54 credits (men) or 53 credits (women) in Health and Physical Education in addition to Health and Physical Education 115-116-117, 118-119-120; Education 335, 373; General 131-132; and Zoology 202. Pre-physical therapy students take Zoology 101 and 5 credits in a physical science instead of General 131-132.

The following courses must be completed by all students: Health and Physical Education 198, 199, 236, 290, 326, 337, 365, 378, 380, 386, 465, and 490.

Women students also take: Health and Physical Education 231, 232, 301, 302, 324-325, 375, and 460.

Men students also take: Health and Physical Education 210, 211-212, 240, 310, 311-312, 321-322.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

101-102-103 (11abc), 201-202-203 (12abc) FRESHMAN AND SOPHOMORE PHYSICAL EDUCATION 6Q 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. The final grade of this work will be withheld until the University swimming test has been passed. A student may not repeat a class in beginning skills of any sport in which he has received a passing grade. 6 credits in these courses may be applied to meet the graduation requirement, and only 1 credit per quarter may be used to meet this requirement. Enter any quarter.

115-116-117 (15abc) PROFESSIONAL ACTIVITIES FOR MAJORS AND MINORS 3Q A W S 1. Required of all majors and minors in H&PE, in place of 101-102-103, 201-202-203. (115) Men: physical exercise programs. Women: team sports. (116) Men: volleyball and badminton. Women: tumbling. (117) Men: individual sports. Women: fundamentals of rhythmic activities. Offered in 1958-1959 and alternate years. Credits earned will be in addition to the 180 required for graduation.

118-119-120 (16abc) PROFESSIONAL ACTIVITIES FOR MAJORS AND MINORS 3Q A W S 1. Required of all majors and minors in H&PE, in place of 101-102-103, 201-202-203. (118) Men: tumbling and apparatus. Women: recreational sports. (119) Men: wrestling. Women: intermediate swimming. (120) Men: team sports. Women: individual sports. Offered in 1959-1960 and alternate years. Credits earned will be in addition to the 180 required for graduation.

198 (19) INTRODUCTION TO PHYSICAL EDUCATION 1Q W 3, Su e/y Prereq major or minor in Physical Education or c/i. History and principles of Physical Education, professional opportunities, relationship with other fields and with education in general. Orientation for prospective majors and minors.

199 (32) FIRST AID 1 Q A W S 2, Su o/y. Recognition and treatment of common injuries. Red Cross certification may be secured upon completion of the course.

208 (S58) 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 (62ab) 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 (59) 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.

231 OFFICIATING VOLLEYBALL (WOMEN) 1Q A 2. Theory, principles, rules and techniques. Practical experience in officiating intramurals. Ratings given by Women's National Officials Rating Committee upon successful completion of requirements.

232 OFFICIATING BASKETBALL (WOMEN) 1Q W 2. Theory, principles, rules and techniques. Practical experience in officiating intramurals. Ratings given by Women's National Officials Rating Committee upon successful completion of requirements.

236 (36) TECHNIQUES OF TEACHING SWIMMING 1Q S 2 Prereq completion of University swimming test or c/i. Methods of teaching swimming, and use of tests for classifying students.

238 (111) WATER SAFETY AND LIFE SAVING 1Q S 2, Su o/y Prereq Red Cross Senior Life Saving Certificate. Instructor's course in life saving and water safety. Red Cross Instructors' Certificate awarded upon successful completion of requirements, providing student has reached his 19th birthday.

240 (40) CARE AND PREVENTION OF ATHLETIC INJURIES 1Q W 2, Su e/y. Common athletic injuries, their causes, prevention and care. Practical work in bandaging and wrapping.

290 (20) HUMAN ANATOMY 1Q A 5, Su o/y. The systems of the body and the structure of organs composing these systems.

301 (63a) TEACHING OF TEAM SPORTS FOR WOMEN 1Q W 2. Methods and materials.

302 (63b) TEACHING OF INDIVIDUAL-DUAL SPORTS FOR WOMEN 1Q S 2. Methods and materials.

310 (60) COACHING OF BASKETBALL (MEN) 1Q A 3, Su 2. Theory and practice in handling work in basketball.

311 THEORY OF OFFICIATING BASKETBALL (MEN) 1Q A 1. Principles, rules and techniques.

312 BASKETBALL OFFICIATING FIELD WORK (MEN) 1Q W 1 Prereq 311 or =. Practical experience.

321 (61a) COACHING OF TRACK 1Q W 2. Theory.

322 (61b) COACHING OF TRACK 1Q S 2. Practice.

324 (45a) METHODS AND MATERIALS IN SOCIAL DANCING AND TAP DANCING 1Q A 2.

325 (45b) METHODS AND MATERIALS IN MODERN DANCE 1Q W 2.

326 (45c) METHODS AND MATERIALS IN FOLK DANCING AND SQUARE DANCING 1Q S 2.

335 (135) METHODS OF TEACHING PHYSICAL EDUCATION 1Q A 3, Su e/y Prereq 115 through 120. Required of all teaching majors and minors in H&PE. Materials for junior and senior high school programs. Demonstration and practice in teaching techniques. Lesson planning.

362 (170a) RECREATION LEADERSHIP (SOCIAL RECREATION) 1Q W 3 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 Social Welfare 362.

363 (170c) RECREATION LEADERSHIP (CAMP LEADERSHIP) 1Q S 3 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 Social Welfare 363.

365 (150) ORGANIZATION AND ADMINISTRATION 1Q W 4, Su o/y Prereq 198. Principles and policies for the organization and administration of high school physical education departments. Management of the physical plant.

FOR UNDERGRADUATES AND GRADUATES

332 (132) INSTRUCTOR'S FIRST AID 1Q S 2, Su o/y Prereq 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.

337 (137) THE ELEMENTARY SCHOOL PHYSICAL EDUCATION PROGRAM 1Q S 3, Su e/y Prereq 335. Theory and practice in selecting and presenting activities for different age levels; characteristics of growth and development related to course content. Credit not allowed for this and 339.

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 attention given to problems of the grade school teacher. Credit not allowed for this and 337.

356 (134) PLAYGROUNDS 1Q A 4 Prereq 337. Theory of play. History, construction, equipment, management, problems, methods of conducting, and practical working supervision of playgrounds.

358 (S105) THE HIGH SCHOOL INTRAMURAL PROGRAM 1Q Su 3. Problems of organizing and administering the intramural sports in the high school.

361 (170b) INTRODUCTION TO RECREATION LEADERSHIP 1Q A 3 Prereq Sociology 101. Sociology of play, 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 Social Welfare 361.

366 (151) CURRICULUM CONSTRUCTION 1Q W 4 Prereq 337. Classification and analysis of physical education activities; criteria for selecting activities; construction of programs for specific situations.

367 (S154) PROBLEMS IN PHYSICAL EDUCATION 1Q Su 4 Prereq = of a teaching minor in physical education. Class and department management, policies, public relations, problems in competition, intramurals, GRA's, teaching of sex hygiene, recreation, facilities, program progression, and supervision. Individual projects.

369 (S161) SURVEY OF PROFESSIONAL LITERATURE 1Q Su 2 Prereq = of teaching minor in physical education. Recent publications in physical education and related fields; survey and evaluation.

373 (153) SCHOOL HEALTH PROBLEMS 1Q W S 4, Su e/y. 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 (28) PERSONAL HEALTH PROBLEMS (WOMEN) 1Q W 2. Fundamentals of healthful living; health counseling problems frequently encountered by physical educators.

378 (148) PHYSIOLOGY OF EXERCISE 1Q W 2, Su o/y. The physiological effects of the different types of exercise on the functions of the human body.

380 (121) APPLIED ANATOMY 1Q W 5, Su o/y. The bones, muscles and joints of the body. Bodily movements, joint mechanics, and the action of muscles in relation to physical education and activities of daily life.

385 (136) KINESIOLOGY 1Q W 5, Su o/y Prereq 380. Advanced study of muscle action and joint mechanics of the body.

386 (141) PREVENTIVE AND CORRECTIVE PHYSICAL EDUCATION 1Q S 5, Su o/y Prereq 380. Prevention and detection of common physical defects frequently encountered by the physical educator; follow-up programs possible under medical supervision.

388 (152) INTRODUCTION TO PHYSICAL THERAPY 1Q S 4 Prereq 386 or concurrent registration. Theory and practice of massage. The treatment of defects which come within the field of physical education.

390 (162) CLINICAL TRAINING IN PHYSICAL THERAPY 1Q a/q V 1-4 R-4 Prereq 386 and c/i. Practical experience in local physical therapy centers.

460 (160) SEMINAR 1Q A W S Su V 1-3 R-3. Special problems connected with health, physical education and recreation; reviews of current literature, and topical discussions.

465 (165) TESTING IN PHYSICAL EDUCATION 1Q A 3, Su e/y. Orientation to testing and measuring, administrative use of tests, elementary statistical techniques and procedures.

490 (70) TEACHING OF COLLEGE PHYSICAL EDUCATION ACTIVITIES 1Q A W S 2 R-4 Prereq 115-116-117, 118-119-120, 335, and c/i. Assigned teaching projects in college classes, under supervision.

FOR GRADUATES

501 (204) RESEARCH a/q 2 R-4. Scientific methods in Health, Physical Education and Recreation. Practice in employing research techniques in planning and developing individual projects.

503 (203) ADVANCED TESTS AND MEASUREMENTS 1Q W 4, Su o/y Prereq 465 or =. Specific tests for evaluation of organic, neuromuscular, psychological and social outcomes. Practice in construction and application of tests, and interpretation of results.

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

HISTORY as taught at Montana State University is a study of man's past activities with the hope that lessons may be learned which will be applicable in solving 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 situations.

Courses are offered in European, American, Far Eastern, Canadian, and Latin-American History. Many students combine the fields of History and Political Science.

The department offers the Master of Arts degree in History involving the completion of an acceptable thesis based on original research. Admission to graduate work requires an acceptable academic record as well as the equivalent of an undergraduate major in history.

Occasionally 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 bases for the pursuit of their chosen occupations, but also furnishes knowledge and perspective 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 guide the following special requirements must be completed for the Bachelor of Arts degree with a major in History. A minimum of 45 credits in History is required, with 20 credits from courses numbered over 300 and including History 491 or 492. Only 2 credits in 491 or 492 will count in fulfilling the minimum of 20 upper division credits for the B.A. History majors must elect a minimum of 15 credits in American and 15 credits in European History.

A student may offer a combined major in History and Political Science with 60 credits, of which at least 20 credits must be in History and 20 credits in Political Science. A minimum of 20 credits must be selected from courses numbered over 300 including either History 491 or 492 or Political Science 491. Only one of courses History 491 or 492, or Political Science 491 will count in fulfilling the minimum of 20 upper division credits for the B.A.

Either the completion of five quarters of a foreign language or the demonstration of a satisfactory reading knowledge of historical, legal or political science materials in such a language is required. With the consent of the Chairman of the Department the student may fulfill the Language requirement by completing three quarters each in two languages.

In the final year in the Department, each major must pass a Senior Comprehensive examination.

With permission of the Chairman of the Department, majors may offer credit earned in Economics 365, 304-305, 331, 332 and in Journalism 390 in partial fulfillment of the major requisites for a degree.

To earn a Bachelor of Arts degree with a major in History and Political Science together with a Bachelor of Laws degree in six academic years the student must fulfill all the customary University and departmental requirements. The study of Latin is recommended in fulfilling the foreign language requirement. Because of the time involved and the field to be covered, the Department and the School of Law jointly propose a more rigid program than is ordinarily required from Departmental majors. The student must satisfy as many positive requirements for graduation as is possible during his freshman year. As a sophomore, he will be expected to register for History 241, 242 and 243, 251, 252 and 253, and Political Science 202, 203 leaving free approximately seven hours per quarter for the completion of requirements and for electives. As a junior, the student will select a minimum of 31 hours from the offerings of the Department with Political Science 332 and 333, 361 and 362, and 365 and also History 376, 345, and 346 as required or highly recommended courses. In lieu of or in addition to the above, electives may be chosen from Economics 304, 305, History 306, 370, 371, and Political Science 391, 363, 331, 353, 375, 387, 388, 389, depending on the student's preparation and objectives.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

101-102-103 (12ab) **THE DEVELOPMENT OF WESTERN CIVILIZATION** 3Q A W S 5. Enter any quarter. (101) Ancient world through the Medieval period. Greek and Roman civilization, barbarian invasions; Medieval society to 1400. (102) Early Modern Age to 1830. Age of Absolutism; Period of Enlightenment; French Revolution and Napoleon; Industrial Revolution; Congress of Vienna and Age of Restoration. (103) 1830 to present. Growth of liberalism, nationalism, socialism, imperialism, First and Second World Wars, The Cold War.

207-208 (33ab) **MEDIEVAL EUROPE** 2Q A W 3. Enter either quarter. (207) The political, economic, social and religious development of Europe from the third century to the eleventh century. (208) A continuation of 207 to the fourteenth century. Some attention will be paid to cultural and intellectual developments.

210 (34) **RENAISSANCE AND REFORMATION** 1Q S 3. The political, economic and social development of Europe from 1300 to 1600.

215-216 (30ab) **EUROPE IN THE 19th CENTURY** 2Q A W Su 3. (215) The internal political, economic and social development of the European states from 1815-1870; (216) Continuation after 1870 of 215.

241-242-243 (13abc) **ENGLISH HISTORY** 3Q A W S Su 3. Enter any quarter. (241) The political, economic and social history of Great Britain until 1485. (242) From 1485 to 1715. (243) From 1715 to 1902.

251-252-253 (21abc) **UNITED STATES HISTORY** 3Q A W S Su 4. Enter any quarter. (251) United States History, 1600-1815. Colonial beginnings and progress; the Revolution, Confederation and Constitution; early political development; the War of 1812. (252) United States History 1815-1890. The new nationalism; sectionalism; Civil War and Reconstruction; the New West; agricultural and industrial development. (253) United States History 1890-present. Capitalism and constitutional changes; the Progressive Movement; World War I; the Depression and the New Deal; World War II.

285-286-287 (23abc) **HISPANIC-AMERICAN HISTORY** 3Q A W S 4. Enter any quarter. (285) The European background; the political and economic development of Spain and Portugal to the foundation of the Latin American colonies. (286) The Spanish and Portuguese colonies; the revolutionary period and the foundation of present day Latin American states. (287) The development of Latin American States in the 19th and 20th centuries.

FOR UNDERGRADUATES AND GRADUATES

303 (15a) **HISTORY OF ANCIENT GREECE** 1Q A 4 Prereq 101 or =. An introductory summary of the Ancient Near Eastern Empires, and a survey of Greek culture during the period of the city-states, the hegemony of Alexander the Great, and the Hellenistic Age to the rise of Rome.

305 (15b) **HISTORY OF ANCIENT ROME** 1Q W 4 Prereq 101 or =. Early Etruscan civilization; Rome as part of Hellenistic culture. The Republic, the Principate and the Empire.

306 (111) **MEDIEVAL CIVILIZATION** 1Q S 3 Prereq 101, 207-208 or =. Institutional, social and cultural progress in the Middle Ages.

311 (35) **THE OLD REGIME** 1Q W 3 Prereq 102. The political, economic and social development of Europe from 1600 until the outbreak of the French Revolution.

314 (29) **FRENCH REVOLUTION AND NAPOLEONIC ERA** 1Q S 4, Su 3 Prereq 102 or 211 or =. Political, economic and social development in France and the international reactions to the revolution.

318 (103) **THE EARLY 20th CENTURY (1900-1933)** 1Q S Su 3 Prereq a college course in modern European history. Internal development of Britain and of the continental powers. International rivalry prior to the First World War. The War and its aftermath.

319 (132) **CONTEMPORARY EUROPEAN HISTORY** 1Q S Su 4 Prereq a college course in modern European history. The internal affairs and the external relationships of the principal European states since 1933.

321-322 (121ab) **CENTRAL EUROPE** 2Q W S 4 Prereq 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 to 1815; (322) The growth and development of the states of Central Europe and the Balkans from 1815 to the present.

324-325-326 (114ab) **HISTORY OF RUSSIA** 3Q A W S Su 4. Enter any quarter. Prereq a college course in modern European history. (324) Beginnings of Russia to 1850. (325) Russia since 1850. (326) Russia since 1900. Revolution of 1905. Russia in World War I. The Revolutions of 1917. The Soviet Regime. Russia in World War II.

328 **MODERN FRANCE AND SPAIN** 1Q S 4 Prereq 102 or 314. The political, economic and social development of France and Spain from the beginning of the 19th century to the present. Some attention will be paid to cultural, religious and intellectual trends.

330-331 (107ab) **EUROPEAN DIPLOMACY** 2Q A W 3. Enter either quarter. Prereq 12 cr. in the Department. (330) The diplomacy of the European states from the Congress of Vienna to 1856. (331) The diplomacy of the European states 1856 to the First World War.

333 (126) **ECONOMIC HISTORY OF EUROPE** 1Q A Su 4 Prereq Econ 203. The economic development of Europe from the early Middle Ages to the present time.

334 (Hist 146) **MODERN WAR AND WESTERN SOCIETY** 1Q S 3 Prereq 8 cr. in the Department. 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.

335 (110) **THE BRITISH EMPIRE** 1Q S 4 Prereq 102 or 241-242. English explorations and colonization. The First British Empire. Development in the 19th century. The Empire today.

339 (139) **HISTORY OF CANADA** 1Q A 4 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 (127ab) ENGLISH CONSTITUTIONAL HISTORY 2Q A W 3 Prereq 241-242. (345) English institutional development to the end of the Middle Ages. (346) English institutional development since the Middle Ages.

348 (147) ECONOMIC HISTORY OF ENGLAND 1Q A Su 4 Prereq 241-242. The economic and social background and development of modern England; the growth of Empire.

353 (128) AMERICAN COLONIAL HISTORY 1Q W 4 Prereq 242 or 251. Discovery and settlement; development of colonial society; government in the colonies and in England; 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 Confederation period, 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 ideas, development, and significance of the Federalists and Jeffersonians.

356 THE AGE OF JACKSON 1Q W Su 3 Prereq 252. American history, 1815 to 1840, emphasizing the growth, significance and decline of Jacksonian democracy.

359 (131) RECENT AMERICAN HISTORY 1Q S Su 4 Prereq two quarters of United States history. The interal affairs and external relationships of the United States in the 20th century.

360-361-362 (129ab) SOCIAL AND CULTURAL HISTORY OF THE UNITED STATES 3Q A W S 3 Prereq 251-252-253. An examination of American culture in the light of some leading social, religious, literary, and philosophical ideals; (361) continuation of 360; (362) continuation of 361.

365 (101) 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.

367-368 (102ab) HISTORY OF THE NORTHWEST 2Q W S 3. Enter either quarter. Prereq 251-252. The most significant factors in the history of Oregon, Washington, Idaho, Montana, Wyoming, North and South Dakota and their relation to the nation. (368) A continuation of 367.

369 (122) MONTANA HISTORY 1Q A Su 3 Prereq two quarters of United States history. Explorations, the fur trade and the missionary period; early settlements, gold mining, the development of territorial and state government, silver and copper mining, agriculture; the economic, political and social systems of modern times.

370-371 (120ab) DIPLOMATIC HISTORY OF THE UNITED STATES 2Q W S 4 Prereq 252-253. (370) The foreign relations of the United States from the American Revolution to 1900; (371) A continuation of History 370.

372 HISTORIC SITES 1Q S Su V 1-3 R-3 Prereq either 365 or 367 or 368 or 369. The location and evaluation of historic sites in Montana and the Northwest. Field trips under the joint supervision of archaeologists and historians.

374 (125) ECONOMIC HISTORY OF THE UNITED STATES 1Q S 4. Colonial economy; the expansion of the United States; industrial and agricultural developments; the heyday of laissez-faire; the great depression, the Second World War and after.

376 (119) 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.

377 (113) AMERICAN BIOGRAPHY 1Q S Su 4 Prereq 251-352-253. Studies in American biography.

380-381 (117ab) THE FAR EAST 2Q A W Su 4. Enter either quarter. Prereq 5 cr. in the Department. (380) Development of the social, economic and political institutions, principally of China and Japan to the 17th century. (381) Continuation of 380 to the present with some stress on international politics in the Far East.

391 (105abc) PROBLEMS IN HISTORY 1Q a/q V 2-4 R-9 in Hist 391 and Pol Sci 391. Prereq 25 cr in History and Political Science. Study or research in fields selected according to the needs and objectives of the individual student.

395 SPECIAL STUDIES IN HISTORY a/q V 1-2 R-4 Prereq c/i. Offered by different instructors under various titles.

491 (104) EUROPEAN HISTORICAL THOUGHT 1Q A Su 2 Prereq 25 cr in History and Political Science. 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 and Political Science. Study of the contrasts in historical interpretation by selecting problems ranging from colonial to contemporary periods.

FOR GRADUATES

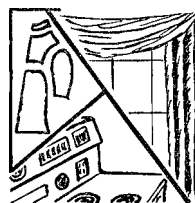
591 METHODS OF HISTORICAL RESEARCH 1Q A 1. Annotation, bibliography, and the analysis of source materials.

597 (201) SEMINAR IN EUROPEAN HISTORY a/q V R-10 Prereq 30 cr in the department and 491. Special problems in European history.

598 (200) SEMINAR IN AMERICAN HISTORY a/q V R-10. Open to graduates who have 30 cr in the Department and 491. Special problems in American History.

699 (299) 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 eleven fields of concentration as is indicated in the copy following.

Opportunities for Home Economics graduates are many and varied. Homemaking and home management, teaching, nutrition, institution management, child care and development, house planning and household equipment, consumer buying, clothing selection, care and construction, food selection and preparation, textiles and textile treatment, and marriage and family relationships, are some of the fields offered.

Positions may be with schools, hospitals, industrial concerns, manufacturers of food or appliances, utilities companies, retail stores, and others, such as magazines and newspapers. Many students avail themselves of the broad opportunities for graduate work to qualify themselves for greater professional responsibilities.

For admission to graduate study in Home Economics a student should have a Bachelor's degree in Home Economics or in a related field and should present evidence of proficiency in academic work.

Both a Master of Science and a Master of Arts are offered, depending largely upon the undergraduate preparation and the field of specialization in Home Economics.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN HOME ECONOMICS. A minimum of 50 credits in Home Economics selected as follows:

Required for all women: Home Economics 102, 104, 141, 155, 157, 210, 242, 346, 302, 303, and 366.

Required for all men: Home Economics 141, 155, 210, 242, 346, and 302; Econ 203.

The following courses are required according to the area of interest selected by the student.

1. GENERAL: Home Economics 258, 308, 310, 311, and 367.
2. TEACHING: Home Economics 258, 308, 310, 311, 321, 342, 344, 368, and 421; a teaching minor acceptable to the School of Education; twenty-four hours in Education including Education 200, 205, 305 and 405; Art 125; Sociology 204 or 311. These courses plus certain electives prepare teachers for vocational Home Economics in reimbursed schools.
3. FOODS AND NUTRITION: Home Economics 342, 344, 346, 348, 406, 431, 432 and 433.
4. CLOTHING AND TEXTILES: Home Economics 258, 264, 308, 352, 358, 359, 360 and 363; Art 231-232-233.
5. NEWS OR MAGAZINE WRITING: English 106 and 201-202-203; Home Economics 342; Journalism 332, 333, 335.
6. RADIO AND TELEVISION: Home Economics 342; Journalism 140, 335, 345, 441-442-443; Speech 241.
7. CONSUMER EDUCATION, PROMOTION, RETAILING: Economics 201-202-203; Business Administration 340, and 360; Journalism 335, 360, and 362; Psychology 241.
8. INSTITUTION MANAGEMENT: Home Economics 342, 348, 406, 431, 432, and 433.
9. FOOD SERVICE MANAGEMENT: Home Economics 342, 431, 432, 433, 434, 435, 436; Business Administration 201-202, 340, 360, 363 (or Journalism 360 and 362), and 441; Economics 201-202-203.
10. AMERICAN DIETETIC ASSOCIATION INTERNSHIP: These requirements are variable and the student should consult his adviser.
11. RESEARCH FOR INDUSTRY OR GRADUATE STUDY: Chemistry 121-122-123, 245, 260, 345-346-347; Bacteriology 300.

CURRICULA IN HOME ECONOMICS

WOMEN

Freshman Year

	A Cr.	W Cr.	S Cr.
Eng 104-105—Freshman Composition and Soc 101			
Elem Soc or Psych 110	5	5	5
(1) Chem 101-102-103—General Chemistry or			
General 131-132-133—Intro to Biol Sci	5	5	5
Art 125—Color and Design	3		
H E 102—Personal Living	3		
H E 104—Home Management		2	
H E 141—Foods		4	
H E 157—Clothing			2
H E 155—Textile Selection			3
H&PE 101-102-103	1	1	1
	17	17	16

(1) Majors in Foods and Nutrition, Clothing and Textiles, Institution Management, Food Service Management and Dietetic Internship training should elect Chemistry.

Sophomore Year

H E 210—Household Equipment	3		
H E 242—Meal Management		3	
H E 258—Clothing Construction			3
Elective	6	6	6
Sociology 101 or 204 Courtship and Marriage or Elem Soc—Electives, language, or group req.	7	7	7
H&PE 201-202-203	1	1	1
	17	17	17

(1) The foreign language requirement listed earlier in the guidebook must be satisfied for a B.A. degree with a major in Home Economics but is not required for a B.S. in Home Economics.

(2) Majors in Foods and Nutrition, Institution Management, Food Service Management and Dietetic Internship training should elect Bacteriology 200, Chemistry 260, Econ 201 or Business Ad 201.

MEN

Freshman Year

H E 141—Introduction to Foods	4		
H E 155—Textile Selection			3
Art 125—Color and Design		3	
Eng 104-105—Freshman Composition		5	5
Bus Ad 201-202—Elementary Accounting	4	4	
Electives, language, or group requirements	6	2-3	6
P E 101-102-103—Physical Education	1	1	1
ROTC 101-102-103—Military or Air Science	2	2	1
or	2	1	2
	17	16-18	16-17

Sophomore Year

H E 210—Household Equipment	3		
H E 242—Meal Management		3	
Econ 201-202-203—Principles of Economics	3	3	3
Chem 101-102-103—Gen Chemistry or General 131-132-133—Intro to Biol Sci	5	5	5
Sociology 204—Courtship and Marriage			3
Electives, language, or group requirements	3	3	4
P E 201-202-203—Physical Education	1	1	1
ROTC 201-202-203—Military or Air Science	2	2	1
or	2	1	2
	17	16-17	17-18

Junior Year

H E 302—Household Furnishings			3
H E 308—Problems of the Consumer	3		
Chem 260—Organic Chemistry		5	
Chem 384—Physiological Chemistry			5
Bact 200—Elementary Bacteriology	5		
Journ 360, 362—Advertising	3	3	
Bus Ad 340—Industrial Organization & Management		4	
Bus Ad 360—Marketing Principles	4		
Zoo 202—Human Physiology			5
Electives, language or group requirements			5
	15	16	15

Senior Year

H E 346—Nutrition	4		
H E 431—Institution Cookery	4		
H E 432—Institution Buying		3	
H E 433—Institution Org. and Management			3
H E 434—Food Cost Control	5		
H E 435—Principles of Meat Pur		2	
H E 436—Food Service in Institutions			3
Bus Ad 441—Personnel Management		4	
Soc 311—Home and Family Life	3		
Electives, languages, or group requirements		6	9
	16	15	15

The above curricula in addition to giving a student a B.S. degree in food service management qualifies the student for American Dietetic Association internship. For a B.A. degree sciences listed above, except those required to satisfy group requirements, may be omitted and languages and electives taken instead.

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

102 (17a) PERSONAL AND FAMILY LIVING 1Q A W S 3 (3-0). Aspects of Home Economics in relation to the student and future career.

104 HOME MANAGEMENT 1Q A W S 2 (2-0) Elementary problems in home living.

105 (11) HOME CRAFTS 3Q a/q 1 (1-0). Selected homemaking skills. Offered by various instructors under different titles.

141 (17b) FOODS 1Q A W S 4 (2-4). The production, selection and preparation of food.

155 (82) TEXTILE SELECTION 1Q W S 3 (2-2). Fabrics for family clothing and home furnishings. Analysis of fibers, yarns, weaves and finishes.

157 (17c) CLOTHING CONSTRUCTION, SELECTION AND CARE 1Q A W S 3 (2-4) Prereq 155. Construction and fitting principles applied to planning and making cotton and wool garments. Artistic and economic factors in the selection of clothings

210 (80) HOUSEHOLD EQUIPMENT 1Q A 3 (2-2). Materials specifications, selection, care and use of equipment. Home mechanics.

242 (21) MEAL MANAGEMENT 1Q W S 3 (2-4) Prereq 104, 141. Selection and care of dining equipment and service. Principles of menu making and food purchasing.

246 (24) ELEMENTARY NUTRITION 1Q W S 4 (4-0). Fundamental principles of adequate human nutrition. Non majors only.

258 (120) CLOTHING FOR THE FAMILY 1Q W 3 (2-4) Prereq 157 and Art 125. Construction, repair, and renovation of garments for the family. An analysis of problems in purchasing clothing from the consumer's point of view.

264 (S86) WEAVING 1Q S 2 (1-3) Prereq Art 125. Weaving on various types of looms. May be offered by extension and as an evening class for 1 credit.

344 (19) FOOD CONSERVATION 1Q W 2 (2-2) Prereq 141, 242. Methods used in conserving, processing, and storing family foods.

431 (133) INSTITUTION COOKERY 1Q A 4 Prereq 141, 242. Application of principles of cookery to large quantity food preparation; menu planning for institutions.

FOR UNDERGRADUATES AND GRADUATES

302 (119) HOME PLANNING 1Q W 2 (1-3) Prereq 104, 210 and Art 125. Practical problems in planning a home.

303 (119) HOUSEHOLD FURNISHINGS 1Q S 3 (2-4) Prereq 302. Furniture selection and problems in renovation, repair, and care of materials in the home.

304 INTERIOR DESIGN 1Q W 3 Prereq 302, 303 and Art 125. Advanced utilization of modern materials in home furnishing and design.

308 (131) PROBLEMS OF THE CONSUMER 1Q A 3 (3-0) Prereq 242. Analysis of problems confronting the consumer.

310 (127) HOME LIVING CENTER 1Q A S 4 Prereq 102, 346. Residence in the home living center. Management of the home. Taken concurrently with 311. Autumn registration is restricted to home economic majors who take Education 405 as pre-fall teaching.

311 (128) HOME MANAGEMENT 1Q A S 2 (2-0) Prereq 102, 104. Open to non-majors. Taken concurrently with 310. Management studies and discussion presented in problems of the home living center. Autumn registration is restricted to those home economics majors who take Education 405 as pre-fall teaching.

321 (163) METHODS OF TEACHING HOME ECONOMICS 1Q W S 4 (2-4) Prereq 102, 104, 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 (138) EXPERIMENTAL FOODS 1Q S 3 (1-6) Prereq 141, 242. Foods from the experimental point of view. Special problems are assigned for individual investigation.

346 (122) NUTRITION 1Q A 4 (3-2) Prereq 242 and Chem 103. Dietetics given in the light of the chemistry and physiology of digestion.

348 (125) CHILD NUTRITION 1Q W 3 (3-0) Prereq 346. The science of human nutrition as it applies to children.

352 HISTORY OF CLOTHING AND TEXTILES 1Q S 3 o/y (3-0) Prereq 157. Historic costumes and textiles and their influences on modern dress.

358 (121) TAILORING 1Q S 3 (0-4) Prereq 258. The study and application of principles for tailoring suits and coats.

359 (18) CLOTHING DESIGN 1Q A S 3 (2-2) Prereq 157 and Art 125. Art principles applied to designing family clothing. Adaptation of commercial patterns to original designs tested by the construction of simple garments.

360 ADVANCED TEXTILES 1Q S 3 e/y (2-2) Prereq 155, Chem 103. Physical and chemical properties of fabrics in relation to use as clothing and home furnishings.

363 ADVANCED CLOTHING DESIGN 1Q W 3 o/y (2-4) Prereq 359, Art 231. Original clothing designs to fit the individual.

366-367-368 (124abc) HUMAN DEVELOPMENT 3Q A W S 3 (2-V) Prereq Psych 110. Enter any quarter. (366) The infant and pre-school child, laboratory work in the nursery school. (367) The juvenile and pre-adolescent in home, school and neighborhood. (368) The adolescent and young adult in home, school, and community.

406 (123) NUTRITION IN DISEASE 1Q S 4 (4-0) Prereq 346. The symptoms of diseases, prophylaxis and feeding in disease.

421 (183) ADVANCED PROBLEMS IN TEACHING HOME ECONOMICS 1Q S 3 (3-0) Prereq 321, Educ 405. Satisfactory home-making education in the upper grades and in high school.

432 (134) INSTITUTION BUYING 1Q W 3 (3-0) Prereq 210. Selection, purchase and storage of foods and selection and care of equipment for institutions; trips to various institutions.

433 (135) INSTITUTION ORGANIZATION AND MANAGEMENT 1Q S 3 (3-0). Efficient organization and administration of food service units, employment procedures, personnel schedules, records, food cost, and maintenance.

434 (136) FOOD COST CONTROL 1Q A 5 (4-2) Prereq Bus Ad 202, Econ 203. Calculation of food costs in institutions. Precosting menus. Inventory and food control procedures.

435 (137) PRINCIPLES OF MEAT PURCHASING 1Q S 2 (2-0) Prereq 432. Meat selection, grading, and purchasing in the institution.

436 (139) FOOD SERVICE IN INSTITUTIONS 1Q S 3 (1-4) Prereq 242. Cafeteria, table service and catering problems in institutional food service.

499 (198) PROBLEMS IN HOME ECONOMICS a/q V 1-6 Prereq senior standing in Home Econ. Qualified students may select for study special problems in any of the major fields 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/i. Group analysis of problems in home economics.

699 (299) 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; methods by which events and ideas are transmitted, and their effects on readers and listeners. It includes instruction in the techniques for professional careers in newspaper work, radio and television, magazines and books, advertising and photography, public relations and promotion, free lance writing, and related fields. Approximately one-fourth of the academic work for a bachelor of arts degree in Journalism will be taken in the School of Journalism. The other three-fourths of the total credits required for graduation will provide a background in the liberal arts, with emphasis on history, government, economics, philosophy, literature, foreign languages, psychology, and sociology.

The degree of Master of Arts in Journalism also is offered (see Graduate School). Undergraduates specialize in a field which may be news-editorial, radio-television, community newspapers, advertising, or magazines. They receive training in reporting, copy editing, advertising, and the history and law of journalism. Depending on their future specialty, they may also take courses in photography, typography, radio-television, magazine and feature writing and editing, public relations, editorial writing, and the international press. Instruction in many courses stresses ethics, legal and social responsibilities, and the opportunities for commercial success and public service.

Graduates obtain positions on newspapers in Montana and in other states, including many metropolitan centers. Some are foreign correspondents. Many are editors and publishers, or hold positions on radio and television stations, with technical magazines, in public relations firms or advertising agencies, and government agencies. Some are distinguished scholars, authors and teachers.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, it is recommended that the high school preparation include study of a foreign language and typing.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN JOURNALISM. In addition to the general requirements the candidate for the degree of Bachelor of Arts in Journalism must complete the recommended core curriculum of 27 hours, plus the requirements of his sequence, plus upper class electives to make a total minimum of 45 hours in Journalism. The core curriculum in Journalism, required of all majors, shall consist of Journalism 100, 270, 290, 360, 361, 371, 380, 381, 491-492-493. A foreign language is required (see FOREIGN LANGUAGE REQUIREMENT in general section of Guidebook).

CURRICULUM IN JOURNALISM

Freshman Year

Journ 100—Introduction to Journalism	Cr
Eng 101-102-103—Freshman Composition	3
ROTC 101-102-103—Military Science or Air Sci (Men)	9
H&PE 101-102-103—Health and Physical Education	5
Additional courses to meet University requirements	28-36
	48-56

Sophomore Year

Journ 270—Reporting	Cr
Journ 290—History and Principles of Journalism	3
ROTC 201-202-203—Military Science or Air Sci (Men)	3
H&PE 201-202-203—Health and Physical Education	5
Additional courses to meet University requirements	3
	34-42
	48-56

Junior and Senior Years

Journ 360—Principles of Advertising	Cr
Journ 361—Advertising Sales	3
Journ 371—Advanced Reporting	2
Journ 380—News Editing	2
Journ 381—Advanced News Editing	3
Journ 491-492-493—Senior Seminar	6
Journ Electives (including sequence requirements)	15-35
Additional Electives	57

Total recommended hours in Journalism	90-110
Total recommended hours in General Education	45
	135
	180

JOURNALISM CURRICULUM

NEWS-EDITORIAL SEQUENCE: Additional 9 hours required to be chosen from Journalism 327, 390, 470, 471, 495.

ADVERTISING SEQUENCE: An additional 9 hours required to be chosen from Journalism 348, 362, 363, 364.

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 Journalism 340, 345, 346, 348.

COMMUNITY JOURNALISM: 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 College of Arts and Sciences and the School of Journalism also offer a curriculum leading to a Bachelor of Arts degree with a major in Radio-Television (see Radio-Television).

FOR UNDERGRADUATES

100 INTRODUCTION TO JOURNALISM 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 (38) TYPOGRAPHY 1Q A W S Su 2 Prereq c/i. Problems of typographical design and application. Elementary work in printing and in the handling of type.

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.

196 (36) CURRENT AFFAIRS 1Q A W S Su 1. Open to non-majors. Current history of the world and its background, relationships and probable influence.

227 (17) ELEMENTARY PHOTOGRAPHY 1Q A W Su 3 Prereq c/i. Open to non-majors. Photographic equipment, materials, and facilities with practice in taking of pictures under varied conditions and processing of film and prints.

270 (21ab) REPORTING 1Q A W S 3 Prereq 100 or c/i. Open to non-majors. Groundwork in gathering, writing and evaluating news.

290 (49) 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 (142) NEWS PHOTOGRAPHY 1Q S 3 Prereq 127 or c/i. Photographic reporting with emphasis on picture possibilities, significance, interest, and impact. Practice with news cameras.

332 (132) MAGAZINE MAKEUP AND EDITING 1Q A 3 Prereq c/i. Open to non-majors. Theory and practice of editing magazines. Practice includes the use of type and illustrations, and adapting format to content.

333 (133) MAGAZINE ARTICLE WRITING 1Q W Su 3 Prereq c/i. Open to non-majors. The preparation and writing of articles for magazines of general circulation. Techniques of analyzing and selling to magazine markets.

334 (134) TRADE AND TECHNICAL JOURNALISM 1Q A S 3 Prereq c/i. Open to non-majors. The writing and editing of trade and business journals, technical and specialized publications.

335 (135) PROMOTION AND PUBLIC RELATIONS 1Q A W S Su 3 Prereq c/i. Open to non-majors. The techniques and theories of promotion and public relations.

340 RADIO-TELEVISION CONTINUITY 1Q S 3 Prereq 140 and Engl 201. The techniques of writing for radio and television. Writing programs for broadcasting.

345 (145) NEWSCASTING 1Q A 3 Prereq 140, 270. Radio and television as news media. Preparation and delivery of radio and television news broadcasts.

346 (146) 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.

348 (148) RADIO-TELEVISION ADVERTISING AND MANAGEMENT 1Q W 3 Prereq 140. Planning and broadcasting of advertising campaigns. Station management and sales principles.

350-351 (123ab) COMMUNITY JOURNALISM 2Q A W 2 Prereq 270. News, editorial, circulation, and advertising problems of weekly and small daily newspapers.

352 (124) NEWSPAPER MANAGEMENT 1Q A W S 3 Prereq 360. Problems of operation of daily and weekly newspapers.

360 (140a) 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 (41) ADVERTISING SALES 1Q A W S 2 Prereq 360 or concurrent registration. Preparation, promotion, and sales of advertising. Lecture and newspaper staff work.

362 (140b) ADVERTISING MEDIA 1Q W 3 Prereq c/i. Open to non-majors. Evaluation of advertising media; rate structures and preparation of advertising and schedules.

363 (143) ADVERTISING LAYOUT AND COPY 1Q S 3 Prereq 360 or c/i. Open to non-majors. Application of typographical and advertising principles to preparation of layouts and copy.

364 (144) RETAIL STORE ADVERTISING 1Q S 3 Prereq 360 or c/i. Open to non-majors. Integration of retail store merchandising among advertising media. Technical aspects of advertising schedules for retail stores.

371 (22) ADVANCED REPORTING 1Q A W S 2 Prereq 270. News coverage, reporting and publishing problems.

380 (30) NEWS EDITING 1Q A W 3 Prereq 270. Instruction and practice in revision of copy, headline writing, use of references and principles of local and wire news editing.

381 (31) ADVANCED NEWS EDITING 1Q A W S 2 Prereq 380. Editing and makeup problems.

FOR UNDERGRADUATES AND GRADUATES

316 (126) SCHOOL PUBLICATIONS 1Q S Su 3 Prereq c/i. Open to non-majors. For students who plan to teach journalism courses in high schools or act as advisers to school publications.

317 (S117) SCHOOL PUBLIC RELATIONS 1Q Su only 3 Prereq B.A. degree, teaching experience, or c/i. The principles of developing better understanding among the school, the press, and the community. For school administrators and teachers.

390 (190) 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 (137) LAW OF JOURNALISM 1Q S 3. Legal guarantees and limitations of the right to gather and publish news and to comment on it.

399 (136) 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. Making of motion pictures for documentary or educational purposes. Film for television.

441-442-443 (R46abc) RADIO-TELEVISION PRODUCTION AND DIRECTION 3Q A W S 3 Prereq 12 hours in radio-television courses. Advanced course in producing and directing radio and television programs. (441) emphasizes radio, (442) and (443) emphasize television.

470 (191) REPORTING PUBLIC AFFAIRS 1Q W 3. Laboratory work in coverage of political and governmental news at the city, county, state, and federal levels.

471 (192) SPECIALIZED REPORTING 1Q S 3 Prereq 371. A tutorial course for students wishing to specialize in a field of reporting such as politics, labor, finance, and science.

491-492-493 (100abc) SENIOR SEMINAR 3Q A W S 2 Prereq senior standing in journalism. Investigative methods of editing, study of several aspects of American society which constitute the background for many news stories, and practice in research methods.

494 RADIO-TELEVISION SEMINAR 1Q S 3 Prereq or co-requisite 441. Radio and television and their effect on society with emphasis on responsibilities of the broadcasting industry.

495 (125) EDITORIAL WRITING 1Q S 3. The editorial pages of leading newspapers; practice in research and the writing of editorials.

496 MASS MEDIA IN MODERN SOCIETY 1Q W 3 Prereq c/i. Inter-relationships between media of mass communication and diverse facets of modern society.

497 INTERNATIONAL COMMUNICATIONS 1Q S 3 Prereq c/i. Media of information in other countries, with emphasis on newspapers.

FOR GRADUATES

598 THEORIES OF COMMUNICATIONS 1Q A 3 Prereq consent of the dean. Structure, processes and effects of communication.

599 METHODS OF JOURNALISM RESEARCH 1Q A W S 3 Prereq consent of the dean. Problems and techniques in study and analysis of communications.

601 (201) RESEARCH IN JOURNALISM 1-3Q A W S Su V Prereq consent of the dean.

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

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 part 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 requisite 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

AUTUMN SEMESTER 1959

September 21-23, Monday through Wednesday..... Registration and Orientation of New Law Students (Including Transfer Students from other Schools)
September 23, Wednesday..... Registration of Upper-class Law Students
September 24, Thursday..... Classes begin at 8:00 a.m.
November 11, Veterans Day..... No classes
November 26, Thursday..... Thanksgiving Day (no classes)
December 19, Saturday..... Christmas Vacation begins after last class
January 4, 1960..... Classes resume at 8:00 a.m.
January 6-9, Wednesday through Friday..... Pre-registration
January 25-30, Monday through Saturday..... Semester Examinations

SPRING SEMESTER 1960

February 3, Wednesday..... Registration for Spring Semester
February 4, Thursday..... Classes begin at 8:00 a.m.
March 19, Saturday..... Spring vacation begins after last class
March 28, Monday..... Classes resume at 8:00 a.m.
April 20-22, Wednesday through Friday..... Pre-registration
May 25-31, Wednesday through Tuesday..... Semester Examinations
June 6, Monday..... Commencement

AUTUMN SEMESTER 1960

September 19-21, Monday through Wednesday..... Registration and Orientation of New Law Students (Including Transfer Students from other Schools)
September 21, Wednesday..... Registration of Upper-class Law Students
September 22..... Classes begin at 8:00 a.m.
November 11, Friday, Veterans Day..... No classes
November 24, Thursday..... Thanksgiving Day (no classes)
December 17, Saturday..... Christmas vacation begins after last class
January 3, 1961, Tuesday..... Classes resume at 8:00 a.m.
January 4-6, Wednesday through Saturday..... Pre-registration
January 23-28, Monday through Saturday..... Semester Examinations

GENERAL STATEMENT: The Law School is accredited by the American Bar Association and the Association of American Law Schools. Organization of instruction is upon the semester basis, the school year being divided into two semesters of approximately eighteen weeks each, including vacation periods. For detailed information concerning facilities, description 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 approved college or university or (2) that he has satisfactorily 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 an average, in all work for which he has registered and received a grade, equivalent to that required for graduation from the institution attended, on condition, nonetheless, that he qualify for such degree prior to receiving a Law degree. Non-theory courses are not acceptable under the provisions of subdivisions (2) and (3) with the exception that required courses in military drill and physical education are acceptable to the extent of ten per cent of the total credit offered for admission. 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 failing to achieve at least average grades (C) in English composition. In view of the fact that graduates of the Law School are admitted to practice law in Montana without taking a bar examination, an applicant from a school other than Montana State University who has not completed his college work is not likely to be admitted unless he has a very high scholastic average and is exceptionally qualified to pursue the study of law. An applicant enrolled in an approved combination program or who has 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 School of Law or from the Educational Testing Service, P.O. Box 592, Princeton, New Jersey.

A number of combination programs have been formulated by the Law School in cooperation with various departments of the University. These include Accounting and Law, Business Administration and Law, Economics and Law, Geology and Law, History and Political Science and Law, and Philosophy and Law. Combination programs in other departments if duly authorized, will be recognized. Students enrolled in approved combination programs receive an undergraduate degree in the department of their concentration at the end of the first 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 for the Law School complete Latin 101-102-103 and Accounting 201-202 and 205.

Special students are not admitted to the Law School. Students otherwise qualified for admission may register for selected courses in law with the approval 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 official transcript of all college and law school 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 as a prospective member of the legal profession, and (c) a report of his grade on the Law School Admission Test.

ADMISSION TO ADVANCED STANDING: Applicants for admission to the Law School with advanced standing must satisfy the requirements for admission to the Law School and show: (1) that the law work previously undertaken has been in an approved law school; (2) that the average in all law work for which the student has registered and received a grade is equivalent to that required for graduation from the institution attended; (3) that the applicant is in good standing and eligible to continue in the law school previously attended; and (4) that the applicant is eligible to continue in this Law School under the policies specified herein. An applicant is not likely to be admitted unless he has a very high scholastic average in the law work previously taken and is exceptionally qualified to pursue the study of law.

BASIS FOR EXCLUSION: (1) Failures: A student who has failed 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 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. Required courses in which the student has received a grade of D or F, and non-required courses in which he has received an F, may be repeated, provided that the total credits in the courses being repeated do not exceed one-half of the total credits for which he is registered. A student who fails to obtain an index of 2.0 at the end of his fourth semester of law study in all 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. Any student who has completed two semesters of law study but thereafter fails two courses in any semester, or who has failed a total of more than ten semester credits during the period of law study, will be automatically dropped from the Law School.

REQUIREMENTS FOR GRADUATION: Candidates for the degree of Bachelor of Laws (LL.B.) must: (1) be graduates of an approved college or university; (2) complete 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 year as specified in the Program of Instruction below; all procedure courses (including Civil and Criminal Procedure, Evidence, Court Room and Office Practice); Constitutional Law, Legal Ethics, and Legal Writing. 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

	First Semester Sem. Hr.	Second Semester Sem. Hr.
Civil Procedure I, II	2	1
Contracts I, II	3	3
Criminal Law	3	
Equity		3
Intro to Law I, II	1	1
Property I, II	3	4
Torts I, II	3	3

SECOND YEAR

Administrative Law		2
Agency and Business Organizations I, II	3	3
Civil Procedure III	3	
Commercial Transactions I, II	3	2
Constitutional Law		4
Evidence	4	
Law Review I	1	
Legal Writing I, II	1	1
Trusts and Future Interests		4
Wills	2	

THIRD YEAR

Conflicts		4
Court Room and Office Practice I, II	1	1
Creditors' Rights		3
Criminal Procedure	2	
Federal Taxation I, II	4	2
Labor Law	2	
Law Review II	1	
Legal Ethics		1
Legal Writing III	1	
Oil and Gas	4	
Restitution	2	
Secured Transactions	3	
Trade Regulations		2
Water Law		2

COURSES

ADMINISTRATIVE LAW 1 Sem S 2. McFarland and Vanderbilt, Cases on Administrative Law, 2nd Edition.

AGENCY AND BUSINESS ORGANIZATIONS 2 Sem A S 3. Continuous. Frey, Cases and Materials on Corporations and Partnerships.

CIVIL PROCEDURE I & II 2 Sem A 2, S 1. Continuous. Atkinson & Chadbourn, Cases and Materials on Civil Procedure; Mason, Montana Cases and Materials on Courts and Types of Jurisdiction (lithographed); Mason, Statutes and Cases on Jurisdiction of Federal Courts (lithographed).

CIVIL PROCEDURE III 1 Sem A 3. Atkinson & Chadbourn, Cases and Materials on Civil Procedure.

COMMERCIAL TRANSACTIONS I & II 2 Sem A 3, S 2. Continuous. Braucher, Sutherland & Willcox, Commercial Transactions.

CONFLICTS 1 Sem S 4. Cheatham, Dowling, Goodrich and Griswold, Cases on Conflict of Laws, 4th Edition.

CONSTITUTIONAL LAW 1 Sem S 4. Dodd, Cases on Constitutional Law, 5th Edition.

CONTRACTS I & II 2 Sem A S 3. Continuous. Williston, Cases on Contracts, 6th Edition, by Professor Laube.

COURT ROOM AND OFFICE PRACTICE I & II 2 Sem A. S. 1. Continuous. Montana Code of Civil Procedure, selected cases and practical exercises.

CREDITORS' RIGHTS 1 Sem S 3. Hanna and MacLaughlan, Creditors' Rights, 5th Edition.

CRIMINAL LAW 1 Sem A 3. Perkins, Cases and Materials on Criminal Law and Procedure.

CRIMINAL PROCEDURE 1 Sem A 2. Keedy and Knowlton, The Administration of Criminal Law (1955). Kimball, Cases and Materials on Montana Criminal Procedure (Multilithed).

EQUITY 1 Sem S 3. Cook, Cases on Equity, 4th Edition.

EVIDENCE 1 Sem A 4. McCormick's Cases on Evidence.

FEDERAL TAXATION I 1 Sem A 4. Griswold, Cases and Materials on Federal Taxation, 4th Ed.; Internal Revenue Code.

FEDERAL TAXATION II 1 Sem S 2. Griswold, Cases and Materials on Federal Taxation, 4th Ed.; Internal Revenue Code.

INTRODUCTION TO LAW I & II 2 Sem A S 1. Continuous. Casebook to be announced.

LABOR LAW 1 Sem A 2. Cox, Cases and Materials on Labor Law, 4th Edition.

LAW REVIEW I & II 2 Sem S 1, Second year. S 1, Third year. No Text.

LEGAL ETHICS 1 Sem S 1. Mimeographed materials of instructor.

LEGAL WRITING I, II & III 3 Sem A S 1 Second Year. A 1 Third year. No text.

OIL AND GAS 1 Sem A 4. Sullivan, Handbook of Oil and Gas Law; Cases and Materials on Oil and Gas (mimeographed).

PROPERTY I & II 2 Sem A 3, S 4. Not continuous. Aigler, Bigelow, and Powell, Cases on Property, 2nd Edition. Volumes I & II.

RESTITUTION 1 Sem A 2. Durfee and Dawson, Cases and Remedies, Volume II.

SECURED TRANSACTIONS 1 Sem A 3. Hanna, Cases and Materials on Security.

TORTS I & II 2 Sem A S 3. Continuous. Smith and Prosser, Cases and Materials on Torts, 2nd Edition.

TRADE REGULATIONS 1 Sem S 2. Handler, Cases on Trade and Regulation.

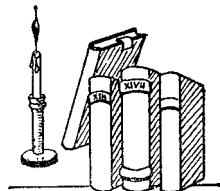
TRUSTS & FUTURE INTERESTS 1 Sem S 4. Simes, Cases on Future Interests, Second Edition, 1951; and Bogert, Cases on Trusts, Second Edition, 1950.

WATER LAW 1 Sem S 2. Mimeographed materials of instructor.

WILLS 1 Sem A 2. Turrentine, Cases and Text on Wills and Administration.

LIBERAL ARTS (See inside front cover)

LIBRARY SERVICE



courses are designed to prepare students for professional work in small and medium sized public and college libraries. Students preparing for school library work should work toward a major in the School of Education with a minor in library service. Students preparing for public or college library work should register for the four-year program leading to the degree of Bachelor of Arts with a major in library service.

This program is so planned that the student is given basic preparation for admission to a graduate library school if he wishes to prepare for work in larger libraries. The course outlined here is primarily designed to meet the needs of Montana for trained librarians, but will also prepare the student for library work in similar libraries in the Northwest and other areas.

The College of Arts and Sciences and the School of Education offer the curriculum in Library Service.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN LIBRARY SERVICE. In addition to the general requirements for graduation listed earlier in the Guidebook, the following special requirements must be completed for the Bachelor of Arts with a major in Library Service:

FRESHMAN YEAR

	Credits
Eng 104, 105—Freshman Composition	10
History 101-102-103—Development of Western Civilization	15
French or German 101, 102, 103—Elementary French or German	15
Psych 110—Introduction to Psychology	5
Health & PE 101, 102, 103	3
ROTC 101, 102, 103	5
Total	48 or 53

SOPHOMORE YEAR

Music 134—Introduction to Concert Music	2
French or German 213, 215—Intermediate and Advanced	8
History 252, 253—United States History	8
Eng 211, 212, 213—Intro to Major British Writers	9
Econ 201-202-203—Principles of Economics	9
Group I Requirements	10
Health & PE 201, 202, 203	3
ROTC 201, 202, 203	5
Total	49 or 54

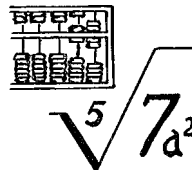
JUNIOR YEAR

Eng 232, 233—Intro to Major American Writers	6
Political Science 101—Intro to Government	4
Sociology 303—Social Science Methods	3
Educ 341—Public Library Administration	4
Educ 344—Cataloging and Classification	4
Educ 345—Bibliography and Book Selection	4
Educ 346—Reference Materials	4
Educ 347—Audio-Visual Aids	3
Art 231, 232, 233—History of Art	9
Group I Requirements	5
Electives (selected from upper division courses)	5 to 8
Total	51 to 54

SENIOR YEAR

Educ 340—Children's Literature	4
Educ 442—Library Work with Children	4
Educ 444—Library Seminar	5-10
Educ 445—Library Practice	5
Eng 408—Seminar (bibliography)	2
Journalism 335—Promotion and Public Relations	3
History 491—Methods and Materials	3
Electives (selected from upper division courses)	20 to 28
Total	46 to 59

MATHEMATICS



is concerned not only with formulas and processes which give "answers" to problems but with the fundamental ideas which are the basis for modern developments in most other sciences. It is a science in its own right and is still growing rapidly.

Graduates find a growing range of occupations open to them—in engineering, the sciences, economics, or business. They may teach in high schools or, with further training, in colleges and universities. Industry and government make increasing use of skilled mathematicians. Such positions may involve work ranging from elementary computation to highly complicated statistical procedures and research.

Modern high speed computing devices, instead of replacing mathematicians, have increased their usefulness. A high degree of mathematical skill is required to put a problem into a form in which the machine can handle it.

The Bachelor of Arts, Master of Arts and Master of Science degrees are offered (see Graduate School).

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

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN MATHEMATICS. In addition to the general requirements for graduation listed earlier in the Guidebook, the following requirements must be completed for the Bachelor of Arts Degree with a major in Mathematics: Math 151, 152, 153, 251, 252. A foreign language; French or German preferred.

- For those planning to go into graduate work or industry: a total of 50 credits in mathematics including at least 20 credits in courses numbered above 300; 15 credits in mathematical statistics or 15 credits in physics; at least 6 credits from mathematics 309, 310, 311, 312.
- For those planning to go into teaching: a total of 45 credits in mathematics including Math 301 or 304; at least 15 of these credits must be in courses numbered over 300, and completion of requirements for certification as a high school teacher.

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

FOR UNDERGRADUATES

001 (A) PRE-FRESHMAN ALGEBRA 1Q A 0. For students who do not qualify for Mathematics 100.

100 (10) INTERMEDIATE ALGEBRA 1Q A W S 2 Prereq satisfactory performance in an examination in elementary algebra.

112 MATHEMATICS FOR BUSINESS STUDENTS 1Q A W S 5 Prereq 100 or satisfactory performance in an examination in intermediate algebra.

125 (25) STATISTICS 1Q A W S Su 5 Prereq 100 or 112 or satisfactory performance in an examination in intermediate algebra.

130 (130) THEORY OF ARITHMETIC 1Q A Su 5 Prereq satisfactory performance in a placement examination in elementary algebra. The mathematical meaning and background of arithmetic.

151 FRESHMAN MATHEMATICS I 1Q A W S 5 Prereq 100 or satisfactory performance in an examination in intermediate algebra. Linear, quadratic, and circular functions: solution of triangles; systems of equations.

152 FRESHMAN MATHEMATICS II 1Q W S 5 Prereq 151. Determinants; identities; complex numbers; transformations of coordinate systems; conic sections.

153 FRESHMAN MATHEMATICS III 1Q A S Su 5 Prereq 152. Permutations, combinations, and probability; progressions, differentiation of algebraic functions; theory of equations.

251 SOPHOMORE MATHEMATICS I 1Q A W Su 5 Prereq 153. Applications of the derivative; transcendental functions and their derivatives; integration.

252 SOPHOMORE MATHEMATICS II 1Q W 5 Prereq 251. Integration techniques; further applications of the derivative and the integral; mathematical induction.

253 SOPHOMORE MATHEMATICS III 1Q S 5 Prereq 252. Solid analytic geometry; partial derivatives; multiple integrals; infinite series.

FOR UNDERGRADUATES AND GRADUATES

301 (131) ALGEBRA FOR TEACHERS 1Q W Su 5 Alternate years Prereq 222 or 251 or concurrent registration. The processes of elementary algebra and arithmetic considered from a mature point of view for the teacher of high school algebra.

302-303 (102ab) STATISTICAL METHODS 2Q A W 3 Prereq 116, or 125, or 152, and c/i. Primarily intended for those who find need for statistical techniques in fields of application; (302) Descriptive statistics, principles of estimation, confidence intervals, tests of significance; (303) analysis of variance, regression, correlation, design of experiments, simplified statistics.

304 (132) GEOMETRY FOR TEACHERS 1Q W 5 Alternate years Prereq c/i. The subject matter of high school geometry compared with that of other geometries.

305 TOPICS IN MATHEMATICS Su V Prereq 1 year experience in teaching high school mathematics. 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. Not allowed towards a major in Mathematics.

309-310 (109ab) ADVANCED CALCULUS 2Q A W 3 Prereq 224 or 253. (309) Sequences of real numbers; continuous functions; partial derivatives. (310) Riemann integrals; series of functions; power series; line integrals.

311-312 (110ab) INTRODUCTION TO ABSTRACT MATHEMATICS 2Q A W 3 Prereq 222 or 251. (311) An introduction to modern ideas of mathematics. Groups, rings, fields, vector spaces. (312) Vector spaces and matrix theory.

313 (101) ORDINARY DIFFERENTIAL EQUATIONS 1Q S 5 Prereq 223 or 252 (Math 309-310 recommended). Elementary solutions of differential equations; introduction to series solutions; Bessel, Legendre equations; introductions to Sturm-Liouville systems; Picard's Method.

314 (112) LINEAR GROUPS 1Q S 1 Prereq 312.

320 SYNTHETIC PROJECTIVE GEOMETRY 1Q A 3 Prereq 251. Projective transformations and projective invariants; conics; geometric construction of fields; applications to metric geometry.

322 ANALYTIC PROJECTIVE GEOMETRY 1Q W 3 Prereq 311. Projective transformations, projective invariants, and conics by means of coordinate systems.

324 ELEMENTARY NUMBER THEORY 1Q S 5 Prereq at least 20 cr in Math with a grade of C+ or better.

341-342-343 (140abc) MATHEMATICAL STATISTICS 3Q A W S 5 Prereq 223 or 252 and c/i. (341) Development of necessary mathematical concepts, probability, random variables and distribution function. (342) Random variables, distribution functions, sampling, testing hypothesis. (343) A continuation of 342.

399 (150) SEMINAR 1Q a/q V R-15 Prereq c/i. Guidance in special work for advanced students.

409 (108) INTRODUCTION TO FUNCTIONS OF A COMPLEX VARIABLE I 1Q A 3 Prereq 310. Beginning complex variables and basic concepts of topology.

411 (111) INTRODUCTION TO FUNCTIONS OF A COMPLEX VARIABLE II 1Q W 3 Prereq 409.

413 REAL VARIABLES 1Q S 3 Prereq 309-310.

415-417-419 (171abc) MATHEMATICAL METHODS OF SCIENCE 3Q A W S 3 Prereq 310, 313 (Math 312 is recommended). (415) Differential equations, existence theorems, Fuch's theorem, method of Frobenius. (417) complete closed orthonormal sets of functions, Fourier series. (419) Sturm-Liouville systems and boundary value problems.

421 (181) ANALYSIS I: TOPOLOGY 1Q A 3 Prereq 310. The theory of plane sets of points, of general sets of points and properties invariant under continuous and topological transformations.

422 (191) ABSTRACT ALGEBRA I 1Q A 3 Prereq 310 and 312. Groups, rings, isomorphisms, homomorphisms, integral domains, fields, ideals.

423 (183) ANALYSIS II: THE LEBESGUE INTEGRAL 1Q W 3 Prereq 310. An introduction to the theory of Lebesgue measure and Lebesgue integration in Euclidean n -space.

424 (192) ABSTRACT ALGEBRA II 1Q W 3 Prereq 422. Theory of fields, field extensions, Galois fields, norms and traces.

425 (182) ANALYSIS III: MEASURE AND INTEGRATION 1Q S 3 Prereq 423. Set functions, semi-rings, and fields of sets measures. The general theory of integration with respect to a measure function.

426 (193) ABSTRACT ALGEBRA III 1Q S 3 Prereq 424. Groups with operators, normal series and composition series, Galois theory, real fields, fields with valuations.

FOR GRADUATES

Before beginning work on an M.A. a student should have an undergraduate major in mathematics with a B average in upper division courses in mathematics. As preparation for advanced courses, he should have Math 309, 310, 311, 312. These courses are not required for the M.A. or M.S. in teaching.

600 (200) GRADUATE SEMINAR 1Q a/q V Prereq c/i. This course provides guidance in graduate subjects or research work.

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

ASTRONOMY

111 (A-11) DESCRIPTIVE ASTRONOMY 1Q S 5. An introductory course.

MEDICAL TECHNOLOGY is a combined study of chemistry, physics, physiology and Microbiology. A medical technologist is one who, by education and training, is capable of performing, under the supervision of a pathologist or other qualified physician, the various 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, Hawaii, 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.

Various medical technology schools require only 2 or 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 two years. It is possible then, but not recommended, to take two years of college work and 12 months of hospital practice to be certified by the Board of Registry as a Medical Technologist. The present trend is to require at least 3 years of college work and 12 months of hospital practice.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, it is recommended that high school preparation include Algebra, Geometry, Trigonometry, Chemistry, Physics and a foreign language.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN MEDICAL TECHNOLOGY: In addition to the general requirements listed earlier in the Guidebook, the following courses are required for the Bachelor of Science in Medical Technology: Microbiology 200, 302, 310, 402, 410; Physics 111, 112, 113; Zoology 104, 105, 201, 202; Chemistry 121, 122, 123, 245, 261, 262. A minimum total of 45 credits from Microbiology courses listed above and from the following courses is required: Microbiology 305, 320, 331, 401,

403, 404, 405, 406, 407, 408, 420, 430; Zoology 303, 305, 340, 341, 385; Chemistry 346, 347, 370, 384, or any other course approved by the advisor and Department Chairman.

BASIC MEDICAL TECHNOLOGY CURRICULUM

FRESHMAN YEAR

	A Cr.	W Cr.	S Cr.
Chem 121-122-123—College Chemistry	5	5	5
Zoo 104-105—Elementary Zoology	5	5	
Math (courses depends on preparation and placement)			5
Eng 104-105—Freshman Composition	5	5	
Electives			5
H&PE 101-102-103—Freshman Phys Ed	1	1	1
ROTC 101-102-103—Military or Air Science (Men)	2	2	1
or	2	1	2
	16-18	16-18	16-18

SOPHOMORE YEAR

Microb 200—General Bacteriology	5		
Chem 261-262—Organic Chemistry	4	4	
Chem 245—Quantitative Analysis			4
Zoo 201—Comp. Vert. Anatomy			5
Physics 111-112-113—General Physics	5	5	5
Elective			5
H&PE 201-202-203—Sophomore Phys Ed	1	1	1
ROTC 201-202-203—Military or Air Science (Men)	2	2	1
or	2	1	2
	15-17	15-17	15-17

JUNIOR YEAR

Microb 302—Medical Microbiology	5		
Microb 310—Immunology and Serology		5	
Zoo 202—Human Physiology			5
Electives	12	12	12
	17	17	17

SENIOR YEAR

Microb 402—Hematology	4		
Microb 410—Clinical Diagnosis	12	4	12
Electives	16	16	16

329, 375; Chemistry 263, 384, or any other course approved by the advisor and head of the department.

BASIC PROGRAM

Freshman Year

	Cr. A	Cr. W	Cr. S
Chem 121-122-123—College Chemistry	5	5	5
Zool 104-105 Elem Zool or Bot 121-122 Gen Bot	5	5	
Engl 104-105—Freshman Composition	5	5	
Math 151—Freshman Math or equivalent			5
Electives			5
H&PE 101-102-103—Physical Education	1	1	1
ROTC 101-102-103—Military or Air Science	2	2	1
or	2	1	2
	16-18	16-18	16-18

Sophomore Year

Phys 111-112-113—General Physics	5	5	5
Chem 261-262—Organic Chemistry	4	4	
Chem 245—Quantitative Analysis			4
Microbiology 200—General Microbiology	5		
Electives		5	5
H&PE 201-202-203—Physical Education	1	1	1
ROTC 201-202-203—Military or Air Science	2	2	1
or	2	1	2
	15-17	15-17	15-17

Junior Year

Microb 310—Immunology and Serology		5	
Microb 302—Medical Microbiology	5		
Foreign Language	5	5	5
Electives	5	5	10
	15	15	15

Senior Year

Microb 405-406-407—Seminar	1	1	1
Electives	15	15	15
	16	16	16

FOR UNDERGRADUATES

For explanation see Index under "Symbols"

100 (19) ELEMENTARY MICROBIOLOGY 1Q A S Su 3 (3-0) or S 5 (3-4). Fundamentals of general bacteriology, pathogenic bacteria and immunology. Lab consists of bacteriological examination of food, water, soil, milk and experiments with disease-producing bacteria. (Not allowed towards a major in Microbiology.)

105 (26) GENERAL HYGIENE 1Q S 3 (3-0). Personal hygiene and its effects on the individual and the community. Nutrition, sanitation and prevention of diseases.

110 (210) PUBLIC HEALTH 1Q W 2 (2-0). Sanitation problems as they involve health and disease.

200 (117) GENERAL BACTERIOLOGY 1Q A 5 (3-4). Bacterial taxonomy, classification, morphology, physiology; effect of environmental factors on bacteria; microbiology of soil, water, milk and foods; and industrial microbiology.

FOR UNDERGRADUATES AND GRADUATES

302 (119, 121) MEDICAL MICROBIOLOGY 1Q A 5 (3-4) Prereq 200. Pathogenic microorganisms including bacteria, fungi, viruses, and rickettsia.

303-304 (101ab) PHARMACEUTICAL BACTERIOLOGY 2Q A W 5 (3-4) Prereq Chem 263, Phys 113 or 223. (303) Principles and techniques of basic bacteriology; (304) Pathogenic bacteriology, immunology and chemotherapy as they apply to the field of Pharmacy.

305 (132) MEDIA PREPARATION 1Q a/q 2 (1-3) Prereq 200. Preparation, sterilization and storage of culture media; differential media, function of ingredients, and general nutritional requirements of bacteria.

310 (118) IMMUNOLOGY AND SEROLOGY 1Q W 5 (3-4) Prereq 302. General principles of immunity and extensive laboratory work in serology, animal experimentation, and clinical diagnosis.

320 (122) BACTERIOLOGY OF WATER AND SEWAGE 1Q W On demand 5 (3-4) Prereq 200. Microorganisms found in water and sewage; sewage treatment and disposal, and water purification.

330 (122) FOOD MICROBIOLOGY 1Q A On demand 3 (3-0). Microbiology of foods with emphasis on preparation, preservation and spoilage of foods.

331 (122) FOOD MICROBIOLOGY LABORATORY 1Q A On demand 2 (0-4) Prereq 330. Technics for the investigation of microorganisms in foods.

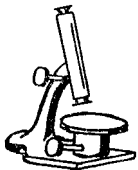
340 MICROBIOLOGY FOR TEACHERS 1Q Su 5 (3-4). Introduction to Microbiology to high school science teachers. Not open to Microbiology majors.

401 (191) ADVANCED IMMUNOLOGY 1Q On demand 3 (3-0) Prereq 310. Advanced theories of immunity and recent immunological technics.

402 (125) HEMATOLOGY 1Q A 4 (2-4). Blood elements and blood chemistry in health and disease as applied to hospital laboratories.

403 (193) MICROBIAL PHYSIOLOGY 1Q S 5 (3-4) Prereq c/i. Physiology of bacteria and related microorganisms, the metabolism of microbes, enzymes of bacteria.

MICROBIOLOGY AND PUBLIC HEALTH.



Microbiology is the study of bacteria, molds, yeasts, rickettsia, protozoa and viruses. The field includes General, Medical, Sanitary and Industrial Microbiology, as well as Food and Water Microbiology, Immunology, and Serology, and certain aspects of Agricultural Microbiology.

A Bachelor of Arts degree is given in this department. The first two years are spent mainly in developing a sound 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. The Department offers graduate study leading to the Master of Arts degree. 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 give him the fundamental background needed for graduate studies in this department. (For general requirements of all graduate students, see Graduate School.)

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, it is recommended that high school preparation include Algebra, Geometry, Trigonometry, Chemistry, Physics and a foreign language.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN MICROBIOLOGY. In addition to the general requirements for graduation listed earlier in the guidebook, the following courses must be completed for the Bachelor of Arts degree in Microbiology: Microbiology 200, 302, 310, 405, 406, 407; Zoology 104-105 or Botany 121-122; Chemistry 121-122-123, 245, 261-262; Physics 111-112-113. The foreign language requirement listed earlier in the guidebook must be satisfied.

A minimum of 45 credits in the major field is required to receive the baccalaureate degree. This requirement may be satisfied by a successful completion of Microbiology courses listed above and any of the following courses; Microbiology 110, 305, 320, 330, 331, 401, 402, 403, 404, 408, 410, 415, 420, and 430; Zoology 303, 305; Botany 225, 325,

404 MICROBIAL GENETICS 1Q S 2 (2-0) Given on demand Prereq senior standing in one of the biological sciences and c/i. Mutation, adaption and genetic recombination in bacteria and other microbes.

405-406-407 SEMINAR 3Q A W S 1 (1-0). Recent literature in Microbiology and related subjects.

408 (131) BACTERIAL CYTOLOGY 1Q W V 3-5 (3-4) Prereq c/i. Anatomy of microorganisms.

410 (121) CLINICAL DIAGNOSIS 1Q W 4 (2-4) Prereq 302. Clinical diagnostic methods used for the analysis of blood, spinal fluid, urine, feces and gastric juice with emphasis on the practical methods used in hospital laboratories.

411 EPIDEMIOLOGY 1Q S 3 (3-0) Prereq c/i. Distribution and frequency of disease and factors affecting its spread and control.

420 (192) VIROLOGY 1Q S 3 (3-0). Bacteriophage, plant and animal viruses.

430 SPECIAL PROBLEMS IN MICROBIOLOGY 1Q a/q V 1-5 R-25 Prereq c/i. Independent research.

FOR GRADUATES

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

505 MICROBIOLOGY LITERATURE 3Q A W S 1 (1-0). Reading and reporting of microbiological literature.

510 PHYSIOLOGY OF PROTOZOA On demand 2. Nutrition and metabolism of protozoa of medical importance.

520 ALLERGY AND HYPERSENSITIVITY On demand 2. Recent advances in the field.

600 (200) RESEARCH a/q V R-25. Original investigations on a research problem under the guidance of a staff member.

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

MUSIC

The School of Music offers to students who have demonstrated talent in music, the opportunity to continue further study of music either for a profession or an avocation, and to acquire at the same time a broad general education. Complete sequences of courses are given to prepare a student for (A) a career as teacher or supervisor of music in the public schools, or for (B) a career directed toward composition, private teaching, and concert work, or for (C) thorough training in music within the structure of a broad liberal arts curriculum.

The School of Music is a member of the National Association of Schools of Music.

The following degrees in music are offered by the School of Music:

- Bachelor of Music
 - with a major in Music Education
 - with a major in Applied Music
 - with a major in Theory or Composition
- Bachelor of Arts
 - with a major in Music
- Master of Music
 - with a major in Music Education
 - with a major in Applied Music
 - with a major in Composition

REQUIREMENTS FOR ADMISSION. In general, admission as a freshman in the School of Music is by certificate from the high school from which the student graduates. The faculty of the School of Music is more concerned with evidence of talent, conspicuous achievement in music, promise of development, and in scholarship in general, than it is in the precise content of the program which the prospective music student has followed prior to admission to college. The School of Music welcomes the opportunity to advise with students and parents during the high school period by correspondence or by interviews on the campus.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREES IN MUSIC. In addition to the general requirements for graduation listed earlier in the guidebook, the following special requirements must be completed:

1. All candidates for the Bachelor of Music degree must select academic electives so as to complete a minimum of 54 credits not

including required freshman and sophomore physical education and military science, courses in music, and courses in education offered for state certification.

2. For the Bachelor of Music with a major in Music Education, the course requirements in Curriculum A must be completed.

3. For the Bachelor of Music with a major in Applied Music or in Theory or Composition, the course requirements in Curriculum B must be completed.

4. For the Bachelor of Arts degree with music as a major, the course requirements in Curriculum C must be completed.

5. All students majoring in music are required to attend a minimum of eight recitals per quarter as prescribed by the faculty.

6. All music majors seeking a B.M. degree are required to participate in Band, Orchestra or a Choral Group each quarter of residence of the regular school year. Students who are wind instrument majors in their applied field must register for band (or orchestra, if designated) every quarter, string majors must register for orchestra every quarter; voice majors must register for choir every quarter. Piano and organ majors must fulfill this requirement by the election of Music 140 or 106-110. Exceptions to this requirement may be made only by action of the music faculty.

7. All candidates for the Bachelor of Music degree must satisfactorily demonstrate completion of 6 credits in Piano 100 or completion of Piano in Class 217.

APPLIED MUSIC FEES

Non-Music Majors

One half-hour lesson per week	\$12.00
Two half-hour lessons per week	24.00
Three half-hour lessons per week	36.00

Music Majors

One half-hour lesson per week	\$12.00
Two or more lessons per week	20.00

For majors and non-majors who register for applied music for less than a full quarter or who withdraw before the end of the quarter, a charge of \$1.75 per private lesson will be made. Refunds are based on the number of weeks elapsed since the beginning of the quarter.

Lessons in applied music missed by the instructor will be made up within the quarter. Lessons missed by students or lessons falling on a legal holiday will not be made up.

RENTALS, PER QUARTER

Practice room without piano, one hour daily	\$2.00
Additional hour daily	1.00
Piano and practice room, one hour daily	3.00
Additional hour daily	2.00
Organ and practice room, one hour daily	6.00
Additional hour daily	5.00
Wind and string instruments	3.00

Rentals must be paid for entire quarter. No refunds of rentals will be made.

(The above fees are subject to modification by action of the State Board of Education.)

A. CURRICULUM FOR BACHELOR OF MUSIC DEGREE WITH A MAJOR IN MUSIC EDUCATION:

For students who sincerely feel the challenge and vital service opportunity in the teaching profession, and whose high school background includes experience in musical organizations, Montana State University offers three major courses, each leading to the degree of Bachelor of Music with a major in Music Education.

Students desirous of teaching and directing both vocal and instrumental music may enroll for the General Supervisor's Course. Separate courses for vocal and instrumental majors are available. These courses of study meet the state requirements for certification for public school teaching (see Education).

GENERAL SUPERVISOR MAJOR

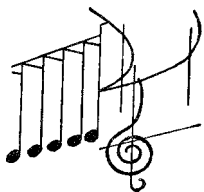
FRESHMAN YEAR	Credits	per	Quarter
Music 101, 102, 103 (Applied)	1,1,1		1,1,1
Music 106-110 (Organization)	1,1,1		1,1,1
Music 111-112-113 (Theory I)	3,3,3		3,3,3
Music 114, 115,116 (Piano in Class)	1,1,1		1,1,1
Music 125, 126, 127 or 129 (Strings or Winds in Class)	1,1,1		1,1,1
Music 135, 136, 137 (Introduction to Music Literature)	2,2,2		2,2,2
English 104-105 & Psych. 110	5,5,5		5,5,5
Health & Physical Educ. 101-102-103	1,1,1		1,1,1
R.O.T.C. 101-102-103 (Men)	2,2,1		2,2,1

SOPHOMORE YEAR:

Music 201, 202, 203 (Applied)	1,1,1
Music 106-110 (Organization)	1,1,1
Music 241, 242,243 (Theory II)	4,4,4
Music 215, 216, 217 (Piano in Class)	1,1,1
Music 117, 118,119 (Voice in Class)	1,1,1
Music 231, 232, 233 (Conducting)	3,3,3
Electives (Non-Music)	3,3,3
Health & Physical Educ. 201-202-203	1,1,1
R.O.T.C. 201-202-203 (Men)	2,2,1

JUNIOR YEAR:

Music 301, 302, 303 (Applied)	1,1,1
Music 106-110 (Organization)	1,1,1
Music or Educ. 323, 324, 325 (School Music)	3,3,3
Music 125, 126, 127, or 129 (Strings or Winds in Class)	1,1,1
Education 200, 205, 305	4,4,5
Electives (Non-Music)	6,6,6



SENIOR YEAR:

Music 401, 402, 403 (Applied)	1,1,1.
Music 106-110 (Organization)	1,1,1.
Music 434, 435, 436 (History of Music)	3,3,3.
Music 329, 330, 331 (Orchestration)	2,2,2.
Music Electives (upper division)	3,3,3.
Education 405 (Practice Teaching)	3,3,3.
Electives (Non-Music)	4,4,4.

VOCAL MAJOR

Vocal majors in Music Education follow Curriculum A with the following exceptions: Music 125, 126, 127, 129, 233 and 325 are not required. Music or academic electives may be substituted.

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. CURRICULA FOR BACHELOR OF MUSIC DEGREE WITH

MAJORS IN APPLIED MUSIC, IN THEORY OR COMPOSITION.

The serious instrumentalist or vocalist whose talent and ability are unquestionably superior may enroll for training leading to the degree of Bachelor of Music with a major in Applied Music. Enrollment may not be completed until the student has received the recommendation of a major professor or a committee of the music faculty, before which the student has appeared in an audition at the time of enrollment.

Completion of the entire Curriculum qualifies the student to receive the Secondary State Certificate in Applied Music by endorsement from the State Department of Public Instruction. Students who intend to request a certificate in applied music by endorsement must include 4 credits in Educational Psychology or Philosophy of Education as an elective.

MAJOR IN PIANO OR ORGAN

FRESHMAN YEAR:	Credits per Quarter
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)	3,3,3.
Music 135, 136, 137 (Introduction to Music Literature)	2,2,2.
English 104-105 & Psych. 110	5,5,5.
Health & Physical Educ.	1,1,1.
R.O.T.C. 101-102-103 (Men)	2,2,1.

SOPHOMORE YEAR:

Music 251-252-253 (Applied)	4,4,4.
Music 106-110 or 140	1,1,1.
Music 241-242-243 (Theory II)	4,4,4.
Music 247, 248, 249 (Keyboard Harmony)	1,1,1.
Electives (non-music)	4,4,4.
Health & Physical Educ.	1,1,1.
R.O.T.C. 201-202-203 (Men)	2,2,1.

JUNIOR YEAR:

Music 351, 352, 353 (Applied)	4,4,4.
Music 106-110 or 140	1,1,1.
Music 320-321-322 (Class Piano Methods)	2,2,2.
Music 231-232-233 (Conducting)	3,3,3.
Music electives (upper division)	2,2,2.
Electives (non-music)	4,4,4.

SENIOR YEAR:

Music 451-452-453 (Applied)	4,4,4.
Music 106-110 or 140	1,1,1.
Music 434-435-436 (History of Music)	3,3,3.
Music 445 (Senior Recital)	2,2,2.
Electives (non-music)	7,7,7.

MAJOR IN VOICE

FRESHMAN YEAR:	Credits per Quarter
Music 151, 152, 153 (Applied)	3,3,3.
Music 106-110 (Organization)	1,1,1.
Music 111-112-113 (Theory I)	3,3,3.
Music 114-115-116 (Piano in Class)	1,1,1.
Music 135, 136, 137 (Introduction to Music Literature)	2,2,2.
English 104-105 & Psych. 110	5,5,5.
Health & Physical Educ. 101-102-103	1,1,1.
ROTC 101-102-103 (Men)	2,2,1.

SOPHOMORE YEAR:

Music 251, 252,253 (Applied)	4,4,4.
Music 106-110	1,1,1.
Music 241, 242, 243 (Theory II)	4,4,4.
Music 215, 216,217 (Piano in Class)	1,1,1.
Elective (language)	5,5,5.
Health & Physical Educ.	1,1,1.
ROTC 201-202-203 (Men)	2,2,1.

JUNIOR YEAR

Music 351-352-353 (Applied)	4,4,4.
Music 106-110	1,1,1.
Music 231, 232 (Conducting)	3,3
Music electives (upper division)	2,2,5.
Electives (non-music)	5,5,5.

SENIOR YEAR:

Music 451, 452, 453 (Applied)	4,4,4.
Music 106-110	1,1,1.
Music 434, 435, 436 (History of Music)	3,3,3.
Music 445 (Senior Recital)	2,2,2.
Electives (non-music)	5,5,5.

MAJOR IN ORCHESTRAL INSTRUMENTS

FRESHMAN YEAR:	Credits per Quarter
Music 151, 152,153 (Applied)	3,3,3.
Music 106-110 (Organization)	1,1,1.
Music 111-112-113 (Theory I)	3,3,3.
Music 114-115-116 (Piano in Class)	1,1,1.
Music 135, 136, 137 (Introduction to Music Literature)	2,2,2.
English 104-105 & Psych 110	5,5,5.
Health & Physical Educ.	1,1,1.
ROTC 101-102-103 (Men)	2,2,1.

SOPHOMORE YEAR:

Music 251, 252, 253 (Applied)	4,4,4.
Music 106-110	1,1,1.
Music 241, 242, 243 (Theory II)	4,4,4.
Music 215, 216, 217 (Piano in Class)	1,1,1.
Electives (non-music)	5,5,5.
Health & Physical Educ.	1,1,1.
ROTC 201-202-203 (Men)	2,2,1.

JUNIOR YEAR:

Music 351-352-353 (Applied)	4,4,4.
Music 106-110	1,1,1.
Music 140 (Ensemble)	1,1,1.
Music 231, 232, 233 (Conducting)	3,3,3.
Music electives (upper division)	3,3,3.
Electives (non-music)	4,4,4.

SENIOR YEAR:

Music 451, 452, 453 (Applied)	4,4,4.
Music 106-110	1,1,1.
Music 140 (Ensemble)	1,1,1.
Music 434, 435, 436 (History of Music)	3,3,3.
Music 445 (Senior Recital)	2,2,2.
Electives (non-music)	4,4,4.

MAJOR IN COMPOSITION OR THEORY

FRESHMAN YEAR:	Credits per Quarter
Music 101, 102,103	1,1,1.
Music 100	1,1,1.
Music 106-110 (Organization)	1,1,1.
Music 111, 112, 113 (Theory I)	3,3,3.
Music 159, 160, 161 (Composition I)	2,2,2.
Music 135, 136, 137 (Intro to Music Literature)	2,2,2.
Eng 104-105 & Psych 110	5,5,5.
Health & Physical Educ.	1,1,1.
ROTC 101-102-103 (Men)	2,2,1.

SOPHOMORE YEAR:

Music 201, 202, 203	1,1,1.
Music 100	1,1,1.
Music 106-110	1,1,1.
Music 241, 242, 243 (Theory II)	4,4,4.
Music 259, 260, 261 (Composition II)	2,2,2.
Music 231, 232, 233 (Conducting)	3,3,3.
Electives (non-music)	3,3,3.
Health & Physical Educ.	1,1,1.
ROTC 201-202-203 (Men)	2,2,1.

JUNIOR YEAR:

Music 301, 302, 303	1,1,1.
Music 106-110	1,1,1.
Music 329, 330, 331 (Orchestration)	2,2,2.
Music 359, 360, 361 (Composition)	2,2,2.
Music Electives (upper division)	5,5,5.
Electives (non-music)	5,5,5.

SENIOR YEAR:

Music 401, 402, 403	1,1,1.
Music 106-110	1,1,1.
Music 434, 435, 436 (History of Music)	3,3,3.
Music 379, 380, 381 (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 the Music 101-403 Series, must take Music 100—Piano until a jury examination has been passed.

Theory Majors are required to complete Music 159, 160, 161 and Music 259, 260, 261.

Composition Majors: A faculty jury examination of representative work in composition must be passed at close of sophomore year. Seniors will present a recital of original music (or equivalent) for solo voice or instrument, and vocal and instrumental groups, including at least one composition for large ensemble.

C. CURRICULUM FOR BACHELOR OF ARTS DEGREE WITH A MAJOR IN MUSIC

Talented students who are especially interested in obtaining a broad liberal arts education, with thorough musical training may elect to follow a course leading to the Bachelor of Arts degree with a major in music. This course is not designed for teacher preparation, but provides a liberal arts background for advanced study in musicology or the humanities. A minimum of 60 credits should be in music. A minimum of 93 credits should be taken in the college of Arts and Sciences. This includes credits in Art and Drama.

FRESHMAN YEAR:	Credits per Quarter
Music 101, 102, 103 (Applied)	1,1,1.
Music 106-110 (Organization)	1,1,1.
Music 111, 112, 113 (Theory I)	3,3,3.
Music 135, 136, 137 (Intro to Music Literature)	2,2,2.
Eng 101-102-103—Freshman Comp	3,3,3.
General 151-152-153 (Humanities)	5,5,5.
Health & Physical Educ.	1,1,1.
ROTC 101-102-103 (Men)	2,2,1.

SOPHOMORE YEAR:

Music 201, 202, 203 (Applied)	1,1,1.
Music 106-110	1,1,1.
Music 241, 242, 243 (Theory II)	4,4,4.
Foreign Language (choice)	5,5,5.
General 131-132-133 (Biol Sci)	5,5,5.
Health & Physical Educ.	1,1,1.
ROTC 201-202-203 (Men)	2,2,1.

JUNIOR YEAR:

Music 301, 302, 303 (Applied)	1,1,1.
Music 106-110	1,1,1.
Music electives (choice of Orchestration or Composition)	2,2,2.
Foreign Language	5,5,5.
Electives from Group II	4,4,4.
Electives (non-music)	3,3,3.

SENIOR YEAR:

Music 401, 402, 403 (Applied)	1,1,1.
Music 106-110	1,1,1.
Music electives (choice of History & Literature or Counterpoint)	3-2,3-2,3-2
Electives (non-music)	7,7,7.
Electives from Group I, II, III	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 theory placement test, a bachelor's degree in one field of applied music or the demonstrated equivalent of an applied major, and an audition or tape recording will be required of students with a B.M. from other institutions.

General requirements: 45 quarter credits of graduate work, a minimum of 12 credits in applied music, a full solo recital, a professional paper (performance practices or literature or both), pass an oral examination covering the field of study; and at least 3 credits selected from Band, Orchestra, Chorus, (or 140 summer only).

Required music courses: 12 credits of 501-502-503, 4-8 credits of 699, 8-12 credits of 329-330-331 and 359-360-361; 421, 422, 423 or 424; 3 or 4 of 431; a minimum of 5 elective credits selected from 311-312-313, 370, 379-380-381, 440, 459-460-461, 535, 558, 562.

Also required: a maximum of 6 credits of non-music electives in upper division or graduate courses.

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 degree, faculty approval of original scores submitted, and faculty approval of pianistic ability through audition.

General requirements: 45 quarter credits of graduate work, minimums of 12 credits in composition and 6 credits in applied music, pass an oral examination covering the field of study; 3 credits selected from Band, Orchestra, Chorus, (or 140 summer only); and a thesis consisting of a musical work of major proportions, written under assignment. A performance of the work shall be supervised by the candidate.

Required Music Courses: 6 credits of 501-502-503, 6 credits of 699, 12 credits of 459-460-461 and 569, 6-9 credits of 421, 422, 423; 424; and 5-11 credits selected from 311-312-313, 370, 379-380-381, 440, 459, 535, 558, 562.

C. Major in Music Education. In addition to the general requirements for admission under the Graduate School, the candidate must meet the following special requirements; at least one year of teaching experience, a theory placement test, an audition in the student's performance area for the purpose of applied music placement.

General requirements: 45 quarter credits of graduate work, a minimum of 3 credits in applied music, a professional paper, at least 15 credits in courses in the 500 series or above, pass an oral examination covering the field of study; and at least 3 credits selected from Band, Orchestra, Chorus, (or 140 summer only).

Required courses (music unless otherwise indicated): 6 credits of 329-330-331 or 379-380-381 or 359-360-361 or 311-312-313, 6 credits of 431, 3-6 credits of 421, 422, 423, 424; 521; 523; 3-6 credits of 501-502-503; 6-10 credits of 699; Educ 452 or a 3 or 4 credit graduate level Educ course; a maximum of 5 elective credits from 308, 354, 363, 370, 558, 562; and a maximum of 6 credits of non-music electives in upper division or graduate courses.

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 Prereq c/i.

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 proficiencies in order that he may use this application as a tool rather than as a medium for performance. A total of 6 credits are 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 V 1-2 Prereq audition and c/i. Individual instruction in voice, piano, organ, string, wind, and percussion instruments. The students in Curriculum A must have an applied major field which is secondary to their primary major, i.e., Music Education. A student entering in Music 101 should show evidence of the equivalence of two year's prior study.

MUSIC 151-152-153, 251-252-253, 351-352-353, and 451-452-453

Applied Major a/q V 2-4 Prereq audition and c/i. 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 equivalence of four years' prior study. A senior recital must be given before graduation.

FOR UNDERGRADUATES

011 MUSIC FUNDAMENTALS 1Q A 0. For freshmen who are lacking in theoretical musical training.

106 (10)—UNIVERSITY CHOIR

107 (10)—CHORAL UNION

108 (10)—ORCHESTRA

109 (10)—SYMPHONIC BAND

110 (10) MARCHING BAND

Courses 106 thru 110 are major musical organizations. 3Q A W S Su 1 Prereq c/i. Music majors take a minimum of 12 credits; non-music majors may take 6 credits.

111-112-113 (11abc) THEORY I 3Q A W S 3 Prereq pass music placement examination. The art and science of music structure, including the study of scales, keys, intervals, chords, cadences, melody writing, beginning modulations, and rhythms. Four-part writing, analysis, dictation, and keyboard application. To acquaint the student with the fundamentals of musicianship, to increase his accuracy and understanding in musical performance, and to train him to think in tone so that he is able to sing, identify, and write the music he hears.

114-115-116 (14abc) PIANO IN CLASS 3Q A W S Su 1. All major and minor scales 2 octaves HS. All major and minor triads in all positions. Harmonization of simple tunes with I IV V7 chords. Materials such as Oxford and Burrows Adult Beginners books. Transposition, memorization, and sight-reading.

117-118-119 (17abc) VOICE IN CLASS 3Q A W S 1. Breathing, resonance, vowel formation, and posture as related to tone production. Simple vocalises, methods of producing crescendo, diminuendo, legato, staccato, flexibility, velocity. Sight reading. The teaching of vocal technics illustrated.

122-123 (22ab) MUSIC EDUCATION IN THE ELEMENTARY SCHOOLS 2Q A W Su 3. (122) 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 fundamentals. (123) Continuation of 122, 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; listening and use of phonograph; instruments of the orchestra by sight and sound; additional work in music reading; music books for the elementary school library. Students registering for Music 122 are expected to take a piano proficiency examination. Those who are unable to pass will be required to take Music 114, Piano in Class.

125-126-127 (25) STRING INSTRUMENTS IN CLASS 3Q A W S Su 1. To enable music education majors to gain a practical knowledge of the stringed instruments.

129 (29) WIND AND PERCUSSION INSTRUMENTS IN CLASS 3Q A W S Su 1 R-6. Enter any quarter. To enable music education majors to gain a practical knowledge of the instruments of the band.

134 (35-II) INTRODUCTION TO CONCERT MUSIC 1Q A W S Su 2. R-4. Enter any quarter. Music in our present-day culture; illustrated lectures for the layman on forms, styles and composers of concert music. Guided listening to recordings and concert attendance. For non-majors only.

135-136-137 (35abc) INTRODUCTION TO MUSIC LITERATURE 3Q A W S Su 2. (135) The elements of musical understanding; the place of music in history with emphasis on its relation to social change and to the history of other arts. Comparative survey of masterpieces of music from the Renaissance through the 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 Twentieth Century. Review of all periods of music history. Study of recordings. Concert attendance required. For music majors only.

140 (40) ENSEMBLE GROUPS 1Q A W S Su 1. Any small group of two or more players or singers may have a course outlined by the instructor. The development of sight reading and acquaintance with music literature; accompanying. Students may register for more than one ensemble group in any one quarter.

159-160-161 COMPOSITION 3Q A W S 2 Prereq c/i. An introduction to the basic art of music composition.

215-216-217 (15abc) 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 (31abc) CONDUCTING 3Q A W S Su 3 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 is provided through individual conducting projects, the class being used as a clinic chorus and band.

241-242-243 (41abc) THEORY II 3Q A W S 4. A continuation of Theory I. Further practice in sight singing, ear training, dictation, and keyboard work; the inter-relation of harmony and counterpoint; the analysis of 18th and 19th century compositions.

247-248-249 (47abc) 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 modulation, transposition, and development of extemporary playing.

259-260-261 COMPOSITION 3Q A W S 2 Prereq 161. Original work in composition.

319 (S120) 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.

320-321-322 (23abc) CLASS PIANO METHODS 3Q A W S 2. Offered 1959-60 and alternate years. Prereq placement in Piano 301. Methods and materials for teaching piano classes in public schools and private studios. Practical demonstrations with children's classes.

323-324-325 (123abc) SCHOOL MUSIC 3Q A W S Su (324-325) 3 Prereq 231 or concurrent registration. Enter any quarter. Music Education majors must register one quarter of 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 children including 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 place in the total school program. (325) School Instrumental Program. Materials and techniques for instrumental instruction at all levels and for high school theory classes.

434-435-436 (134abc) 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 (142) SENIOR RECITAL 1Q 2 Prereq concurrent registration in Music 451, 452 or 453.

FOR UNDERGRADUATES AND GRADUATES

308 (S108) 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 (111abc) 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.

329-330-331 (129abc) ORCHESTRATION 3Q A W S 2 Prereq 243. Orchestrating and transcribing for orchestra and band.

354 (S154) INSTRUMENTAL REPAIR 1Q Su 3. The care and maintenance of woodwind, brass, string, and percussion instruments with special attention given to repair projects covering those problems which most often confront the high school instrumental teacher.

359-360-361 (159abc) COMPOSITION 3Q A W S Su 2 Prereq 243 and 261. Creative writing of music.

363 (163) AUDIO-VISUAL AIDS IN MUSIC EDUCATION 1Q A Su 3. Use of out-of-school radio listening and commercial movies in school music classes; films and film strips available, and their use in grade and high school music classes.

370 PSYCHOLOGY OF MUSIC 1Q S Su 2. Individual difference in musical capacities and the related application in teaching. Current psychological tests and measurements in music.

379-380-381 (179abc) SIXTEENTH CENTURY COUNTERPOINT 3Q A W S 2 Prereq 243 or concurrent registration. Writing and analysis, Renaissance vocal and instrumental style.

421 MUSIC OF THE BAROQUE PERIOD 1Q A 3 Prereq 137 and 243. Detailed analysis and comparison of selected instrumental, vocal and keyboard compositions of the Baroque Period, 1600-1750.

422 (135a) MUSIC OF THE CLASSICAL PERIOD 1Q W 3 Prereq 137 and 243. Detailed analysis and comparison of selected instrumental, vocal and keyboard compositions of the Viennese-Classical Period, 1750-1828.

423 (135b) MUSIC OF THE ROMANTIC PERIOD 1Q S Su 3 Prereq 137 and 243. Detailed analysis and comparison of selected instrumental, vocal and keyboard compositions of the Nineteenth Century.

424 (135c) MUSIC OF THE TWENTIETH CENTURY 1Q S Su 3 Prereq 137 and 243. Detailed analysis and comparison of selected instrumental, vocal and keyboard compositions of the Nineteenth Century.

431 (131) ADVANCED CONDUCTING 1Q A W S Su 3 R-6 Prereq 232 (choral majors), 233 (others), and c/i. A continuation of 231-232-233. Individual instruction and conducting projects with the University Band, Orchestra, and/or Choir.

440-441-442 (140abc) INTERPRETATION AND STYLE 3Q A W S 1. Offered 1959-60 and alternate years. Prereq 243. Piano composition of different national schools and periods, and characteristics of each from the standpoint of interpretation and style.

459-460-461 (169) COMPOSITION 3Q A W S Su 2 R-6 Prereq 361. A continuation of composition with writing in the larger forms.

FOR GRADUATES

501-502-503 (105) 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.

523 (223) SCHOOL MUSIC ADMINISTRATION 1Q A Su 3. School systems, plans for organizing and administering the music program in the elementary, junior and senior high school. For students whose primary purpose in advanced study is preparation for administrative or supervisory work in music education.

535 BAROQUE CHAMBER MUSIC 1Q W 2. The style and performance practices of the late 17th and early 18th centuries. Private and ensemble instruction available on harpsichord, clavichord and viola d'amore.

558 PEDAGOGY OF THEORY 1Q W Su 3. The teaching of theory, including techniques, procedures and sequences of materials and a comparison of standard harmony texts. The application of teaching techniques, and organization of the teaching of theory in secondary schools and in colleges.

562 (262) 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 (105) 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.

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

PHARMACY

is the science which treats of medicinal substances. It embraces a knowledge of medicines and the art of compounding and dispensing them and also their identification, selection, combination, analysis, standardization, and mode of action.

Five years are required for the degree of Bachelor of Science in Pharmacy. The degree of Master of Science in Pharmacy is also offered. Since pharmacists are licensed by the states, the undergraduate curriculum is geared to such requirements. During their first two years at the University students study physical and biological sciences and take courses in the social sciences and English. Pharmacy proper involves studies of the various types of pharmaceutical products and dosage forms—their preparation compounding, and dispensing on physicians' prescriptions. Pharmaceutical chemistry is the application of the principles of chemistry to substances used in pharmacy and medicine with emphasis on preparation, identification, properties, and analysis. Pharmacognosy is the study of drugs obtained from plant, animal, and microbiological sources. Pharmacology treats of the effects and mode of action of drugs on living organisms. Pharmaceutical administration is concerned with the important business phases of retail pharmacy such as marketing and management.

Most graduates enter retail pharmacy in rural, neighborhood, or "downtown" stores. Others conduct hospital pharmacies, a particularly attractive field for women. In addition to the formal 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 in pharmaceutical education.



60—PHARMACY

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 prescribed pre-professional subjects listed below and may be taken in any recognized college or university. The professional curriculum of the School of Pharmacy covers three years and must be taken in residence at Montana State University, although students transferring from other accredited schools of pharmacy may be admitted to an advanced standing determined on the basis of credits presented.

Upper class students may choose approved elective courses designed to prepare them 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 geometry. It is also recommended that the high school preparation include advanced algebra, trigonometry, chemistry, physics and particularly if the student may pursue advanced studies in pharmacy, a foreign language.

REQUIREMENTS FOR ADMISSION TO THE PROFESSIONAL CURRICULUM. 1. The general requirements for admission to Montana State University as listed earlier in the guidebook.

2. At least two years as prescribed in the pre-pharmacy curriculum:

First Year. Botany 130, Chemistry 121-122-123, English 104-105, Health and Physical Education 101-102-103, Mathematics 100 and 151, ROTC 101-102-103, Pharmacy 106, and Zoology 101. (Students satisfactorily passing the mathematics placement examination will be exempt from Mathematics 100 in which case they will substitute a Group II or Group III elective).

Second year. Chemistry 261-262-263, Economics 201-202, Health and Physical Education 201-202-203, Physics 111-112, ROTC 201-202-203, Pharmacy 220, 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 an accumulated grade point index of 2.00 on all college work taken and completed for credit at the time he makes application for admission to the first professional year.

Students who take the two pre-pharmacy years at other schools, and who then transfer to Montana State University, will take Pharmacy 106, and 220, in the first professional year instead of the elective courses prescribed in this year.

The autumn quarter is the normal time of admission to the School of Pharmacy.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PHARMACY. A candidate for admission to the senior year in the professional curriculum may not have a 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.

REQUIREMENTS FOR LICENSURE IN MONTANA. An applicant for licensure as a Registered Pharmacist in Montana must pass an examination by the State Board of Pharmacy. To be qualified for this examination, the applicant shall be a citizen of the United States, of good moral character, at least twenty-one years of age, and shall be a graduate of an accredited school of pharmacy. However, such an applicant shall not receive a license until he has completed an internship of at least one year, following graduation, in an approved pharmacy in the state of Montana.

GRADUATE STUDY. Candidates for the degree of Master of Science in Pharmacy must comply with the regulations governing graduate study and must complete a program satisfactory to the faculty of the School of Pharmacy.

PHARMACY CURRICULUM

First year: Microbiology 303-304; Business Administration 201; Chemistry 245; Pharmacy 106 or Elective, 220 or Elective, 314, 324-325, 361; and Zoology 340-341.

Second year: Business Administration 360; Chemistry 384; Health and Physical Education 199; Pharmacy 414-415-416, 441, 452, 462, 463; and electives.

Third year: Pharmacy 503, 505-506, 516, 517-518-519, 540-541-542, 550, 577; and electives.

FOR UNDERGRADUATES

106 (26) SURVEY OF PHARMACY 1Q A 3 (3-0). Career opportunities, literature, history and terminology, library orientation. Fundamental processes and equipment of pharmacy.

220 (10) PHARMACEUTICAL CALCULATIONS 1Q W 3 (3-0). Metrology, pharmaceutical arithmetic, pharmaceutical Latin, and the form of the prescription including prescription calculations.

314 (14) INORGANIC PHARMACEUTICAL CHEMISTRY 1Q A 4 (3-4) Prereq Chem 123 or =. The inorganic chemicals of medicinal and pharmaceutical importance.

324-325 (24ab) PHARMACOGNOSY 2Q W 4 (3-2), S 4 (3-2) Prereq Bot 130 and Chem 263 or =. The plant and animal products used in pharmacy and medicine.

361 (21a) OPERATIVE PHARMACY 1Q S 3 (2-3) Prereq 220. Fundamental technics; various classes of pharmaceutical preparations.

414-415-416 (114abc) ORGANIC MEDICINAL PRODUCTS 3Q A W S 3 (3-0) Prereq 361 and Chem 263. Organic substances used medicinally with emphasis on the correlation of chemical structure with therapeutic activity.

418 (115) ORGANIC MEDICINAL PRODUCTS LABORATORY 1Q S 2 (0-6 to 9) R-4 Prereq 414-415. Synthesis, identity and purity tests, of organic medicinals.

441 (141) INTRODUCTION TO PHARMACOLOGY 1Q S 3 (0-6) Prereq Zoo 341. Methods of drug administration and the quantitative evaluation of drug activity.

452 (152) DRUG ANALYSIS 1Q A 4 (2-6) Prereq Chem 245. Special and instrumental methods used in the analysis of pharmaceutical preparations.

462-463 (21b,121) OPERATIVE PHARMACY 2Q A W 5 (3-4) Prereq 220 and 361. Fundamental technics and the various classes of pharmaceutical preparations.

466 (102) MEDICINAL PLANTS 1Q On demand 2 (0-6) Prereq 325 or c/i. The collection, identification, drying, garbling, milling of crude drugs.

467 (104) IDENTIFICATION OF MEDICINAL PLANTS 1Q a/q On demand 3 (0-9) Prereq 466 or c/i. The herbarium study of medicinal plants.

468 (113) DRUG MICROSCOPY 1Q On demand 2 (0-4) Prereq junior standing in pharmacy and c/i. Microscopic and microchemical examination of drugs, foods and spices. The detection of adulterants and impurities.

503 (193) BIOLOGICAL MEDICINAL PRODUCTS 1Q W 3 (3-0) Prereq Microbiology 304. Biologicals, antibiotics, vitamins, hormones, and other medicinal products of biological origin.

505-506 (195ab) DISPENSING 2Q A W 4 (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.

516 (196) PHARMACEUTICAL LAW 1Q A 3 (3-0) Prereq senior standing in Pharmacy. State and federal laws pertaining to the practice of pharmacy.

517-518-519 (197abc) PHARMACEUTICAL PRACTICE 3Q A W S 1 (0-2) Prereq senior standing in pharmacy. Students are assigned to the Montana State University Prescription Pharmacy and to various pharmacies in Missoula in order to acquaint them with current retail practices.

540-541-542 (140abc) PHARMACOLOGY 3Q A W S 4 (3-3) Prereq senior standing in pharmacy, and Zool 341 or =. The pharmacodynamics of drugs and its application to therapeutics.

550 (175) ANIMAL HEALTH PRODUCTS AND PESTICIDES 1Q S 3 (3-0) Prereq 540. Pharmaceuticals used in the treatment of diseases of animals. Pesticides and pest control.

575 (142) TOXICOLOGY 1Q S On demand 3 (2-4) Prereq 541. Emergency procedures for the treatment of poisoning, characteristics of the more common poisons, and the recognition and identification of poisons.

577 (177) PHARMACY ADMINISTRATION 1Q S 3 (3-0) Prereq senior standing in pharmacy. The management of retail pharmacy with emphasis on the professional problems of the drug store.

FOR UNDERGRADUATES AND GRADUATES

570 (160) COSMETICS 1Q On demand 3 (1-6) Prereq 463. The theory and technic of cosmetic formulation.

585 (165) ADVANCED DRUG ANALYSIS 1Q On demand 3 (1-6) Prereq 452. The more involved methods of analysis as applied to pharmaceuticals.

592-593 (192ab) HOSPITAL PRACTICE 1-2Q On demand 1-3 (0-2/cr) Prereq 505. Participation in the routine of a hospital pharmacy.

598 (198) PHARMACY SEMINAR a/q 1 (1-0) R-6 Prereq senior standing in pharmacy.

599 (199) SPECIAL PROBLEMS IN PHARMACY a/q V 2-5 (0-3/cr) R-10 Prereq senior standing in pharmacy. Research studies by conference, library and laboratory research in pharmacy, pharmaceutical chemistry, pharmacognosy, or pharmacology.

FOR GRADUATES

602 (206) ADVANCED PHARMACOGNOSTICAL TECHNIQS 1Q a/q 3 (0-9) Prereq 466 and Bot 334 and 335. Technics used in investigative pharmacognosy.

605-606-607 CHEMISTRY OF NATURAL PRODUCTS 3Q a/q 3 (2-3) Prereq 416, Chem 464 or c/i. Enter any quarter. (605) Alkaloids, including methods of isolation, degradation studies, proof of structure, and synthesis, with emphasis on the pharmaceutical compounds. (606) Volatile oils, terpenes and sterols, including their occurrence, methods of isolation and chemistry. (607) Glycosides and related compounds, including methods of isolation, proof of structure, synthesis and chemistry.

608-609-610 (214abc) ADVANCED ORGANIC MEDICINAL PRODUCTS 3Q A W S 3 (3-0) Prereq 416, Chem 464 or c/i. Given alternate years. The organic medicinals with emphasis on proof of structure, synthesis, structure-activity relationships and chemistry.

611 ADVANCED ORGANIC MEDICINAL PRODUCTS LABORATORY 1Q a/q 2 (0-6 to 9) R-6. Preparation, isolation and purification of organic medicinals by advanced technics.

619 (209) ADVANCED PHARMACOLOGY 1-3Q a/q V 3-5 (0-9 to 15) Prereq 542 or =. The more involved actions of drugs upon cells and organs.

630 (210) ADVANCED PHARMACY 1-3Q a/q V 3-5 (0-9 to 15) Prereq 506 or =. The more complex problems involved in formulation and preparation of pharmaceuticals.

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

201 (52a) HISTORY OF ANCIENT PHILOSOPHY 1Q A 5.

202 (52b) HISTORY OF MEDIEVAL AND RENAISSANCE PHILOSOPHY 1Q W 5 Prereq 201, or c/i.

203 (52c) HISTORY OF MODERN PHILOSOPHY 1Q S 5 Prereq 202 or c/i.

210 (53) SYMBOLIC LOGIC 1Q W 5. Theory and practice; translation of arguments into symbols; testing validity by the methods of formal or mathematical logic.

FOR UNDERGRADUATES AND GRADUATES

301-302-303 (101abc) GREAT PHILOSOPHERS 3Q A W S 1. (Given in the summer for 3 cr as 304). Enter any quarter. (301) Greek, Roman, and 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 (152) MODERN ETHICS 1Q W 5 Prereq 120. Recent theories on the nature of moral concepts; these will include naturalism, intuitionism, emotivism, and existentialism.

321 (151) SOCIAL ETHICS 1Q S Su 3 o/y Prereq 120 or c/i. Implications of different social systems with respect to rights, responsibilities, and the formation of personal character.

322 PHILOSOPHY OF LAW 1Q A 3 Prereq 5 credits in Philosophy. Various concepts of law in their relation to individual freedom and to social order; philosophical justification of different forms of authority.

330 (156) PHILOSOPHY IN THE TWENTIETH CENTURY 1Q A 5 Prereq 15 credits in Philosophy preferably 201-202-203.

340 (153) AESTHETICS 1Q S 3. The nature of aesthetic experience, of the standards of art criticism, and of the kinds of knowledge communicated by art. Readings from philosophers, artists and art critics.

341 PHILOSOPHY IN LITERATURE 1Q A W Su 3 Prereq 10 credits in literature or Philosophy or =. Philosophical evaluation of leading ideas in selected masterpieces of literature, both classical and modern.

350 (157) THEORY OF KNOWLEDGE 1Q S 3 e/y Prereq 150 or c/i. Foundations of belief and reliable knowledge; the claims of rationalism, empiricism, pragmatism, mysticism, authoritarianism, and scepticism.

351 (157) METAPHYSICS 1Q W 3 Prereq 150 or c/i. 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/i. Recent investigations into the structure of ordinary and ideal languages as systems of signs and resulting conclusions for Philosophy.

353 (158) CONTEMPORARY PHILOSOPHIES OF SCIENCE 1Q A 3 e/y Prereq 110 or =. History and critical study of some contemporary theories concerning the nature and limits of science, including logical empiricism and operationism.

354 (28) PHILOSOPHY OF RELIGION 1Q W 3 e/y Prereq 5 credits in Philosophy. Philosophical interpretations of religious experience, belief and practice.

360 PLATO 1Q W 3 e/y Prereq 201; or 10 credits in Philosophy and c/i. Reading and interpretation of selected works.

361 ARISTOTLE 1Q S 3 e/y Prereq 201; or 10 credits in Philosophy and c/i. Reading and interpretation of selected works.

365 DESCARTES, SPINOZA, LEIBNIZ 1Q A 5 e/y Prereq 203; or 10 credits in Philosophy and c/i. The development of Continental Rationalism.

366 LOCKE, BERKELEY, HUME 1Q W 5 o/y Prereq 203; or 10 credits in Philosophy and c/i. The development of British Empiricism.

367 KANT 1Q S 5 o/y Prereq 203; or 10 credits in Philosophy and c/i. 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/i. Dialectical idealism (Hegel) and dialectical materialism (Marx).

369 PHILOSOPHICAL LIBERALISM 1Q A 3 o/y Prereq 10 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 philosophies.

371 REALISM 1Q W 3 o/y Prereq 10 credits in Philosophy. Twentieth century realist philosophies.

372 PRAGMATISM 1Q S 3 e/y Prereq 5 credits in Philosophy.

373 EXISTENTIALISM 1Q W 5 Prereq 10 credits in Philosophy and c/i. Selected readings from the works, both philosophical and literary, of prominent existentialist thinkers.

390 (191) PROBLEMS IN PHILOSOPHY 3Q a/q V R-9 Prereq 15 credits in Philosophy and c/i.

420 (194) SEMINAR: THEORY OF VALUES 1Q S 3 Prereq 15 credits in Philosophy and c/i.

422 SEMINAR: PHILOSOPHICAL PRESUPPOSITIONS OF POLITICAL INSTITUTIONS 1Q W 3 e/y Prereq 322 or Political Science 351.

PHILOSOPHY

is man's enquiry, past and present, into the fields of metaphysics, theory of knowledge, ethics, political theory, religious belief, logic, scientific method, and aesthetic appreciation. The course work in philosophy pursues these enquiries with the aid of readings, lectures, and discussions.

The aim of philosophical study is the development of critical ability and intellectual perspective. Career opportunities in philosophy are usually limited to teaching in institutions of higher learning. Philosophy is also recommended as preparation for graduate work in law, theology, social sciences, criticism, and various liberal arts studies.

The Bachelor of Arts and Master of Arts degrees are offered.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PHILOSOPHY. In addition to the general requirements for graduation listed earlier in the guidebook, the following special requirements must be completed for the Bachelor of Arts degree with a major in Philosophy: a minimum of 50 credits, including Philosophy 110, 201, 202, 203, and three or more credits in courses numbered 400 or above. Normally students are expected to complete Philosophy 110, 201, 202, and 203 by the end of their sophomore year. The foreign language requirement listed earlier in the guidebook must be satisfied.

PHILOSOPHY-LAW COMBINATION PROGRAM. In addition to the general requirements for graduation listed earlier in the guidebook, a minimum of 45 credits in Philosophy must be earned in three years. The first year of law will complete requirements for the degree of Bachelor of Arts with a major in Philosophy. Students must take Philosophy 110, 120, 201, 202, 203, 322, 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

100 (55) INTRODUCTION TO PHILOSOPHY 1Q A W S Su 5. The main problems of metaphysics, theory of knowledge, and moral philosophy; the manner in which great philosophers reach their conclusions.

101-102-103 INTRODUCTION TO PHILOSOPHY 3Q A W S 2 Enter any quarter. (101) Theory of Knowledge. (102) Metaphysics. (103) Moral Philosophy. Credit not allowed for both this course and 100.

110 (50) LOGIC 1Q A S 5. The valid forms of reasoning, the methods of science, and the detection of fallacies.

120 (51) ETHICS 1Q A W 5. The nature of moral values, standards of moral judgment, moral problems in personal life and in social relations.

150 FUNDAMENTALS OF METAPHYSICS AND THEORY OF KNOWLEDGE 1Q A 5. Questions and concepts involved in theories of being and the possibilities of knowing reality.

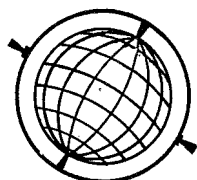


- 451 SEMINAR: METAPHYSICS 1Q S 3 o/y Prereq 15 credits in Philosophy and c/i.
- 452 (192) SEMINAR: DEFINITION AND TRUTH 1Q W 3 o/y Prereq 15 credits in Philosophy and c/i.
- 453 (193) SEMINAR: PHILOSOPHY OF SCIENCE 1Q A 3 o/y Prereq 353 and c/i.
- 454 SEMINAR: MYSTICISM AND INTUITIONISM 1Q S 3 e/y Prereq 15 credits in Philosophy and c/i.
- 490 SEMINAR a/q V R-9 Prereq 15 credits in Philosophy and c/i. Topics announced in schedule of classes.

FOR GRADUATES

- 500 (201) RESEARCH a/q V R-15. Work on selected problems under direction.
- 699 (299) 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 work.

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

Following are the requirements leading to the Bachelor of Arts degree with a major in physical sciences:

University Requirements	Credits	
English Composition	9-10	
Physical Education	6	
Military Science (men)	10	15-26
Group Requirements		
Group II	12	
Group III	12	24

Requirements outside Major

Biological Science 131-132-133 or 15 credits in Biological Science selected from Zoology 101, 202; Botany 111 or 121. At least 5 credits must be selected from each of the two fields Botany and Zoology unless	
Biological Science 131-132-133 is taken	15
Foreign Language (23-25 credits or a reading knowledge)	0-25

Major Requirements

Mathematics through Analytical Geometry or Math 153	15-17
Chemistry 121-122-123	15
Physics 111-112-113 or 221-222-223	15
Geology 110, 120, 130	12
Astronomy	5

Fifteen credits from one of the following sequences

Mathematics 251, 252, 309, 311-312	16
Physics 314-315, 316, 322, 323, 324, 346, 347, 352, 353, 354, (requires Math 252)	25
Chemistry 245, 260 or 261-262-263, 370	15-17
Geology 201-202-203 or 211, 212, 220, 310	15

PHYSICS

$$E=Mc^2$$

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, bi-physics, meteorology and geophysics. In addition the subject of philosophy is profoundly influenced both by the methods and developments of physics.

The Bachelor of Arts and Master of Arts degrees are offered.

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

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PHYSICS. In addition to the general requirements for graduation listed earlier in the guidebook, fifty-five credits in physics must be earned for the Bachelor of Arts degree with a major in physics. In preparation for advanced courses, a student should take Physics 221-222-223 in the sophomore year. Required courses offered in other departments: Mathematics 151, 152, 153, 251, 252, 253; Chemistry 121-122-123. The foreign language requirement listed earlier in the guidebook must be satisfied.

FOR UNDERGRADUATES

111-112-113 (11abc) GENERAL PHYSICS 3Q A W S 5 (5-3) Prereq for 111: Math 100. 111 is prereq for 112 and 113, but 112 is not prereq to 113. (111) Mechanics and wave motion; (112) heat, electricity and magnetism. (113) Sound, light and atomic physics. Credit not allowed for both 111-112-113 and 221-222-223.

121-122 (Radio 3ab) RADIO ELECTRONICS 2Q A W 5 (5-0) Prereq 112 or c/i. Vacuum tubes, radio circuits, high frequency oscillation, electronic measurements. Credit not allowed toward a physics major.

221-222-223 (20abc) GENERAL PHYSICS 3Q A W S 5 (6-4) Prereq for 221: Math 151. 221 is prereq for 222 and 223, but 222 is not prereq to 223. This course satisfies medical and technical school requirements in general physics. (221) Mechanics and wave motion; (222) heat, electricity, and magnetism. (223) Sound, light and atomic physics.

251-252-253 (50abc) 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 (112) VECTOR ANALYSIS 1Q S 3 (3-0) Prereq 222 and Math 252.

FOR UNDERGRADUATES AND GRADUATES

314-315-316 (114ab-166) ELECTRICITY 3Q A W 3 (3-0), S 4 (3-3). Alternate years. Prereq 271.

322-323-324 (122) LIGHT 3Q A W S 2, A W (2-0) S (1-3). Alternate years. Prereq 223 and Math 252.

346-347-348 (146) HEAT, THERMODYNAMICS, STATISTICAL MECHANICS 3Q A W S 2 (2-0) Alternate years. Prereq 223 and Math 253 or c/i.

352-353 (151) ATOMIC PHYSICS 2Q A W 3 (3-0) Alternate years. Prereq 223 and Math 252.

354 (160) NUCLEAR PHYSICS 1Q S 3 (3-0) Alternate years. Prereq 353.

431 (131) SELECTED TOPICS a/q V 1-5 R-10 Prereq c/i and 15 credits in Physics.

471-472 (170ab) MECHANICS 2Q A W 3 (3-0) Prereq 271 and Math 253.

473 QUANTUM MECHANICS 1Q S 3 (3-0) Prereq 472.

480 (180) PHYSICS SEMINAR 1Q S 1 (1-0). A library and discussion course required of Physics majors.

FOR GRADUATES

501 (201) RESEARCH Given subject to demand. V 2-10 R-15 Prereq c/i.

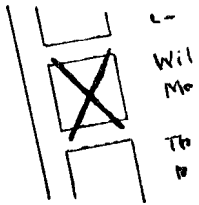
512-513-514 (212abc) ADVANCED EXPERIMENTAL PHYSICS 3Q A W S 2 (0-6). Given subject to demand.

552 (252) RADIATION AND ATOMIC STRUCTURE 1Q 5 (5-0) Prereq 353. Given subject to demand.

554-555 (254ab) QUANTUM MECHANICS 2Q W S 5 (5-0) Prereq 353 and 473.

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

POLITICAL SCIENCE



is the study of government and politics both in their domestic and international aspects. By meeting requirements outlined below, a student may earn a Bachelor's degree in Political Science, in Political Science and Economics, or in Political Science and History. A Master of Arts degree in Political Science is also offered.

Courses offered in the Political Science department are designed to aid students in attaining the following objectives:

- (1) to assist all students in securing a broad liberal education and to equip them with the foundations for effective discharge of the duties of American citizenship;
- (2) to provide undergraduate preparation for those students who propose to continue the study of Political Science at the graduate level with the ultimate goal college teaching and research;
- (3) to offer a broad program of training for those students who plan careers in government or politics, including training both for the foreign service and the domestic public service at the national, state, and local levels;
- (4) to assist in preparing students for careers in teaching at both the elementary and secondary levels;
- (5) to provide a sound background for those students who intend to enroll in law or other professional schools.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN POLITICAL SCIENCE. In addition to the general requirements for graduation listed earlier in the guidebook, the following special requirements must be completed for the Bachelor of Arts degree with a major in Political Science: A minimum of 45 credits in Political Science is required, with 20 credits from courses numbered over 300 and including Political Science 491.

A student may offer a combination major in Political Science and History with a minimum of 60 credits in the Department, of which at least 20 credits must be in Political Science and 20 credits in History. A minimum of 20 credits must be selected from courses numbered over 300 including either Political Science 491 or History 491 or 492. Only one of the latter three will be counted in fulfilling the minimum of 20 upper division credits.

All students majoring in Political Science will complete the integrated introductory sequence 101, 202-203 before taking other courses in Political Science.

Upper division work in Political Science is offered in American Political Institutions, Comparative Government, International Affairs, Public Administration, Public Law, and Political Theory. Each major in Political Science must present credits in at least four of these fields.

A student may offer a combination major in Political Science and Economics with a minimum of 60 credits selected from the two disciplines; at least 27 credits must be in each discipline. Required courses are: Political Science 101, 202, and 203; and Economics 201, 202, 203, 301 and 311. At least 12 additional credits will be chosen from upper division Economics courses and 15 additional credits from Political Science. Twelve hours of the Political Science work must be in upper division courses. All graduating seniors will take comprehensive examinations in the fields of Political Science offered. Either Political Science 491 or Economics 303 will be required.

Either the completion of five quarters of a foreign language or the demonstration of a satisfactory reading knowledge of historical, legal or political science materials in such a language is required. With the consent of the Chairman of the Department the student may fulfill the language requirement by completing three quarters in each of two languages.

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, 304, 305, 331, 332, and in Journalism 390 in partial fulfillment of the major requisites for a degree.

To earn a Bachelor of Arts degree with a major in Political Science and History together with a Bachelor of Laws degree in six academic years, the student must fulfill all the customary University and departmental requirements. The study of Latin is recommended in fulfilling the foreign language requirement. The student must satisfy as many requirements for graduation as is possible during his freshman year. As a sophomore he will be expected to register for History 241, 242, 243, 251, 252 and 253, and Political Science 202, 203 leaving free approximately seven hours per quarter for the completion of requirements and for electives. As a junior, the student will select a minimum of 31 hours from the

offerings of the Department with Political Science 332, 333, 361 and 362, and 365 and also History 376 and 345 and 346 as required or highly recommended courses. In lieu of or in addition to the above, electives may be chosen from Economics 304, 305, and History 306, Political Science 331, 353, 363, 375, 387, 388, 389, 391, and History 370 and 371, depending on the student's preparation and objectives.

FOR UNDERGRADUATES

101 (14) INTRODUCTION TO GOVERNMENT 1Q S Su 4. Comparative study of fundamental political institutions of modern governments, including constitutions, political parties, legislatures, executives, and courts.

202-203 (17ab) AMERICAN GOVERNMENT 2Q A W Su 4. (202) The underlying constitutional principles of the national government. The democratic political processes, including public opinion, interest groups, political parties, and elections. The structure of the national government, congress, the presidency, and the courts; (203) The functions of the national government, including finance, business, labor, agriculture, conservation, welfare, national defense, and foreign policy. Selected problems of national government will also receive emphasis.

231 (60) INTERNATIONAL RELATIONS 1Q S Su 4. A general introduction to the nation-state system; factors of national power and policy, forces inducing tension, legal and institutional devices for adjustment of conflict.

241 (45) POLITICAL PARTIES AND ELECTIONS 1Q W Su 3 Prereq 202-203. The organization and work of American political parties; the conduct and control of nominations and elections; parties and political democracy.

FOR UNDERGRADUATES AND GRADUATES

321 (140) PARLIAMENTARY DEMOCRACIES 1Q W Su 3 Prereq 101. Parliamentary governments with emphasis on Great Britain and France.

322 (141) TOTALITARIAN GOVERNMENTS 1Q A Su 3 Prereq 101. Dictatorships with emphasis on the government of the Soviet Union.

331 (124) INTERNATIONAL ORGANIZATIONS 1Q A Su 3 Prereq 231. The machinery of international cooperation with particular reference to the United Nations.

332-333 (106ab) INTERNATIONAL PUBLIC LAW 2Q A W 3 Prereq 8 or in the Department. The law of nations in relation to peace, war and collective security.

341 PRESSURE GROUP POLITICS 1Q S 3 Prereq 241. The role of interest groups in a democracy; their interaction of interests with public opinion, political parties, legislatures, executives, administration and the courts.

351-352 (115ab) THE DEVELOPMENT OF POLITICAL THOUGHT 2Q A W 4 Prereq 101 or 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.

353 (130) AMERICAN POLITICAL THOUGHT 1Q S 4 Prereq 101 or 203. American political thought, both systematic and popular, from colonial origins to the present.

361-362 (116ab) PUBLIC ADMINISTRATION 2Q A W 4 Prereq 101 or 203. (361) The legal, political, and organization setting of American administration. The processes of public management, including finance and personnel; (362) Problems and techniques of public administration illustrated through the study of case materials.

363 (118) PUBLIC PERSONNEL ADMINISTRATION 1Q S 3 Prereq 361. The recruitment, selection, promotion, training, classification, and rating of public employees; organization for personnel management in government.

365 (136) GOVERNMENT REGULATION OF BUSINESS 1Q S 3 Prereq 203. The theories of government regulation; regulation in practice by legislation, by commission, and by judicial decision; the government in business.

371-372 (133ab) THE AMERICAN CONSTITUTIONAL SYSTEM 2Q W S 3 Prereq 203. The constitution of the United States in the jurisprudence of the Supreme Court.

375 (134) PRINCIPLES OF ADMINISTRATIVE LAW 1Q W 3 Prereq 371 or 361. Administrative law in the United States with reference to other countries. Administrative authorities, the scope and limitations of their powers, remedies, judicial control of administrative action.

381 STATE GOVERNMENT 1Q A 3 Prereq 203. Structure, functions, 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 Prereq 203. Legal bases of municipal government; home rule; mayor-council, commission, and council-manager plans, municipal services; problems of modern cities and metropolitan areas.

387-388-389 (143abc) PROBLEMS OF MONTANA GOVERNMENT 3Q A W S 4, Su 2, 4 R-8 Prereq 12 or in the Department including 203; 381 recommended, and c/i. Enter any quarter. (387) Problems in state government other than legislative. (388) Problems in state government, legislative. (389) Problems in local government. Research and field study, visits to governmental agencies, discussion with public officials.

391 (105abc) PROBLEMS IN POLITICAL SCIENCE 3Q A

W S Su V 2-4 Prereq 20 cr in the Department. Research in fields selected according to the needs and objectives of the individual student. Total credit allowed in Political Science 391 and History 391: 9.

395 (109) SPECIAL STUDIES IN POLITICAL SCIENCE 3Q A W S Su V 1-2 R-4 Prereq 203 or 101 or 231, and c/i. Selected aspects of politics, government or international affairs. Offered by different instructors under various titles.

396 (109) 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 (108) PRESENT WORLD PROBLEMS 1Q S Su 3 Prereq 12 cr in the Department. Selected problems in recent and contemporary international affairs.

491 (104) METHODS AND MATERIALS 1Q W Su 3. Open to departmental majors only. Methods of investigation, evaluation and synthesis in Political Science with a survey of the technical literature on the subject.

FOR GRADUATES

595 (203) SEMINAR IN POLITICAL SCIENCE 1Q A W S Su V R-10 Prereq 30 cr in the Department and 491 or History 491. Special problems in political science.

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

PRE-MEDICAL SCIENCES



are designed for students who wish to prepare for entry into medical, dental, or nursing schools. Medical schools require three years of such training and in most cases prefer four. For the latter the University offers the degree of Bachelor of Arts with a major in pre-medical sciences, the curriculum for which is described below. However, pre-medical students may take their

degrees in any of the related sciences so long as they are careful to include the required courses. These requisites have been standardized by the medical profession and its governing or licensing boards and representatives. They require primarily basic sciences (Chemistry, Mathematics, Physics, and Zoology) as well as a modern Foreign Language, Literature, Psychology, and Social Studies. An equally important prerequisite is superior scholastic standing since medical and dental schools have more applicants for admission than they can accept, for which reason, as well as the exacting nature of those professions, high scholarship is a prime qualification.

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, the student needs algebra and geometry, and preferably also advanced algebra, and trigonometry. 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 competency, 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 advisor during the freshman year, and consult with both the pre-medical sciences advisor and the advisor in the selected major beginning not later than the sophomore year in residence.

MINIMUM COURSE REQUIREMENTS FOR THE PRE-MEDICAL SCIENCES STUDENT. English, Phys. Ed., Mil. Sci., Group and other University requirements listed earlier in the guidebook; Chemistry through Organic Chemistry and Quantitative Analysis; Mathematics through Mathematics 153; One year of college physics; Zoology through comparative anatomy and embryology, (Genetics is recommended); A reading knowledge or 23 credits in French, German, or Russian.

SPECIAL REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE WITH A MAJOR IN THE PRE-MEDICAL SCIENCES: In addition to the minimum course requirements listed im-

mediately 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 the pre-medical sciences and present evidence of satisfactory completion of the first year of medical school may be granted a B.A. degree in the Pre-medical Sciences.

It is possible for the Pre-medical Sciences student who has satisfied the course requirements specified above to earn a bachelor's degree in some other field than the Pre-medical Sciences. A degree in a related field such as Microbiology, Chemistry, Mathematics, or Zoology may be earned by completing minimal 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

	A Cr.	W Cr.	S Cr.
English 104-105—Freshman Composition	5	5	5
Mathematics (depends on placement) 151, 152, 153	5	5	5
Chemistry 121-122-123—College Chemistry	5	5	5
Psychology 110—Introduction to Psychology	1	1	1
Health & Phys. Ed. 101-102-103—Freshman P. E.	1	1	1
R.O.T.C. 101, 102, 103—Mil. or Air Science	2	2	1
	or 2	1	2
	16-18	16-18	16-18

Sophomore Year

Zoology 104-105—Elementary Zoology	5	5	5
Zoology 201—Comparative Vert. Anatomy	5	5	5
French, German or Russian 101, 102, 103	5	5	5
Chemistry 261-262—Organic Chemistry	4	4	4
Chemistry 245—Quantitative Analysis	1	1	1
Health & P. E. 201, 202, 203—Sophomore P. E.	2	2	1
R.O.T.C. 201, 202, 203—Mil. or Air Science	1	2	1
	or 2	1	2
	15-17	15-17	15-17

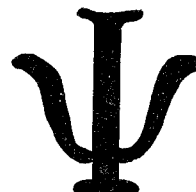
Junior Year

Physics 111-112-113 or 121-122-123—General Physics	5	5	5
Foreign Languages 213 (215)	4	5	5
Zoology 302—Vertebrate Embryology	5	5	5
Chemistry 370—Elementary Physical Chemistry (strongly recommended)	5	5	5
Group requirements	8	5	5
	17	15	15

Senior Year

Science Sequence or electives	5	5	5
Group requirements or electives	10	10	10
	15	15	15

PSYCHOLOGY



is the science concerned with principles of human behavior. It deals with processes of motivation, emotion, perception, learning, thinking, imagination and intelligence.

The Bachelor of Arts and Master of Arts degrees are offered.

Minimum preparation for professional work in psychology requires an MA degree, and full professional competence requires the Ph.D. degree. The fully trained student may select from a variety of positions in clinics, hospitals, schools and colleges, business and industry, and governmental agencies.

At present and in the foreseeable future, the number of jobs far exceeds the number of trained persons who can fill them.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PSYCHOLOGY. In addition to the general requirements for graduation listed earlier in the guidebook, the following special requirements must be completed for the Bachelor of Arts degree with a major in psychology; at least 45 credits in psychology, including Psychology 110, 210, 211, 212, 220, and 411, with at least 25 credits in psychology courses numbered above 299; and a reading knowledge or five quarters (23 to 25 credits) in one modern language. Other courses recommended for psychology majors include Mathematics 125; Philosophy 210 and 353; and Zoology 101 or 202.

RECOMMENDED COURSE SEQUENCE

Freshman Year

	A Cr.	W Cr.	S Cr.
Psychology 110—Introduction to Psychology	5		
Mathematics 100—Intermediate Algebra		2	
Mathematics 125—Statistics			5
Modern Language: 101-102-103	5	5	5
English 104-105—Freshman Composition	5	5	
Elective from Group II			5
Elective		3	
PE 101-102-103—Physical Education	1	1	1
MS 101-102-103—Military Science (Men)	2	2	1
	or 2	1	2
	16-18	16-18	16-18

Sophomore Year

Psychology 210-211-212—General Psychology	5	5	5
Modern Language 213, 215	4		
Elective from Group II			3-5
Psychology 220—Psychological Statistics	5		
Psychology 240—Social Psychology		5	
Electives		1-2	5-8
PE 201-202-203—Physical Education	1	1	1
MS 201-202-203—Military Science (Men)	2	2	1
	or 2	1	2
	15-17	16-19	16-18

Junior Year

Choice of 300-level Psychology courses	4-5	4-5	4-5
Philosophy 210 or Elective	0-5	0-5	0-5
Zoology 202—Human Physiology			5
Electives	5-13	5-13	0-8
	15-17	15-17	15-17

Senior Year

Psychology 411—Systematic Psychology			3
Choice of 400-level Psychology Courses	4-6		1-6
Electives	9-13	15-17	6-13
	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 505-506-507, 511, and 521. Upon completion of two quarters in residence or completion of 30 graduate credits, the student is required to pass a comprehensive written examination in selected areas of Psychology.

MASTER OF ARTS IN GUIDANCE AND COUNSELING. See copy under Graduate School.

FOR UNDERGRADUATES

110 (11) INTRODUCTION TO PSYCHOLOGY 1Q A W S Su 5 (5-0). Psychological methods and principles, and their application to problems of human adjustment.

190 PSYCHOLOGICAL INVESTIGATION A W S Su V 1-3 R-5 Prereq 110 and c/i. Supervised investigation of psychological problems.

210-211-212 (111abc) GENERAL PSYCHOLOGY 3Q A W S 5 (3-4) Prereq 110. Enter any quarter. The concepts, principles, and methods of psychology. (210) Sensation and perception. (211) Learning. (212) Motivation.

220 (17) PSYCHOLOGICAL STATISTICS 1Q A 5 (4-2) Prereq 110 and Math 125 or =. Application of statistical techniques to psychological data.

230 (13) CHILD AND ADOLESCENT PSYCHOLOGY 1Q W 5 (5-0) Prereq 110. Behavioral development through adolescence, with emphasis on the research literature.

240 (14) SOCIAL PSYCHOLOGY 1Q A 5 (5-0) Prereq 110. Effects of social environment upon human behavior. Primarily intended for non-majors in psychology and sociology.

241 (32) PSYCHOLOGY OF BUSINESS 1Q A W 5 (5-0) Prereq 110.

FOR UNDERGRADUATES AND GRADUATES

320 CORRELATIONAL ANALYSIS 1Q W 5 (3-4) o/y Prereq 220. Psychological applications of correlational methods.

342 PERSONNEL PSYCHOLOGY 1Q W 3 (3-0) Prereq 110. Selection, classification, and training; worker efficiency and adjustment problems.

343 (140) INDUSTRIAL PSYCHOLOGY 1Q S 3 (3-0) Prereq 110. Applications of psychology in industry.

350 PSYCHOMETRICS 1Q S 5 (3-4) o/y Prereq 220. Psychological and psychological scaling.

351-352-353 (129-130a) PSYCHOLOGICAL TESTING 3Q A W S 4 (3-2) Prereq 220; 352 is not a prereq for 353. (351) Test construction techniques; (352) Intelligence, aptitude, and ability tests; (353) Objective tests of personality, interests, attitudes, and values.

360 (116) PERSONALITY DYNAMICS 1Q A S Su 5 (5-0) Prereq 10 credits in psychology. Principles of motivation, frustration, conflict, and the mechanisms of defense. Major emphasis on psychoanalytic dynamics.

361 (115) ABNORMAL PSYCHOLOGY 1Q A W Su 5 (5-0) Prereq 110. Description and classification of psychopathological reaction patterns, with emphasis on their psychological dynamics.

409 (111a) SCIENTIFIC METHOD IN PSYCHOLOGY 1Q W 5 (5-0) Prereq 210-211-212. The concepts of definition, cause, natural law, theory, induction, deduction, and verification in psychology.

410 HISTORY OF PSYCHOLOGY 1Q W 3 (3-0) Prereq 210-211-212. The historical development of concepts, methods, and theories in psychology.

411 (104) SYSTEMATIC PSYCHOLOGY 1Q S 3 (3-0) Prereq 210-211-212. Evaluation of the major psychological systems; Structuralism, Functionalism, Behaviorism, Gestalt, Psychoanalysis, etc.

412 (105) PHYSIOLOGICAL PSYCHOLOGY 1Q A 3 (2-2) o/y Prereq 210-211-212, and Zool 202. The physiological and neurological correlates of behavior. Survey of basic experimental evidence.

413 COMPARATIVE PSYCHOLOGY 1Q S 3 (2-2) o/y Prereq 210-211-212. A comparative study of human and animal behavior, and a survey of the phyletic scale.

414 THOUGHT PROCESSES S 5 (3-4) Prereq 10 credits from 210-211-212 and 220. Experimental and theoretical analysis of problem solving, imagination, concept formation, and other complex symbolic behavior.

440 SURVEY RESEARCH 1Q S 5 (3-4) o/y Prereq 240 or 444. Theory and methods of survey research, with review of areas of application.

441 (340) GROUP DYNAMICS 1Q A 5 (3-4) e/y Prereq 444. Social processes within small and large groups.

444 THEORY AND METHODS IN SOCIAL PSYCHOLOGY 1Q W 5 (3-4) Prereq 110 and 15 additional credits in Psych and/or Sociology. Effects of social structure upon human interaction. Field test of several hypotheses.

451 INDIVIDUAL DIFFERENCES 1Q A Su 3 (3-0) Prereq 110. Nature and extent of individual and group differences.

460 (128) THEORIES OF PERSONALITY 1Q S 3 (3-0) Prereq 210-211-212. Current theories of personality and the experimental evidence on which they are based.

490 (190) PROBLEMS IN PSYCHOLOGY 1Q a/q V R-9 in combined undergraduate and graduate work. Prereq 15 credits in psychology and c/i.

491 TOPICAL SEMINAR 1Q a/q V R-6 Prereq 15 credits in psychology and c/i. Topics of current interest with critical examination of the literature.

FOR GRADUATES

501 THEORY CONSTRUCTION IN PSYCHOLOGY 1Q Su V R-8 Prereq 20 credits in Psych and c/i. Seminar approach to selected topics related to construction of rigorous theories in psychology.

505-506-507 (500) PROFESSIONAL PROBLEMS IN PSYCHOLOGY 3Q A W S 1 (1-0). Open only to graduate majors in psychology. Bibliographic problems and the literature search; forms and problems of scientific communication; professional associations, relations with other professions and the public; legal and ethical problems of the psychologist.

511 (212) ADVANCED EXPERIMENTAL METHODS 1Q a/q 5 (3-4) Prereq 210-211-212 or =. Complex designs and techniques in psychological experimentation.

512 (S103) THEORIES OF LEARNING 1Q S Su 4 (4-0) Prereq 211 or =. Critical review of current learning theories with attention to treatment of fundamental concepts.

521 ADVANCED PSYCHOLOGICAL STATISTICS 1Q S 5 (5-0) Prereq 220 or =. Application of statistical procedures to the design of experiments; assumptions underlying techniques of sampling and measures of association and significance.

530 (S213) ADVANCED CHILD AND ADOLESCENT PSYCHOLOGY 1Q S o/y, Su 4 (4-0) Prereq 230 or Educ 205 and teaching experience. Theories and research on motivation, personality, emotions, attitudes, social learning and adjustment in children from birth through adolescence.

550-551-552 (132) INDIVIDUAL APTITUDE TESTING 3Q A W S 3 (1-4) Prereq 352 and c/i. Enter any quarter. Administration, scoring, and interpretation of standard tests, with supervised practice. (550) Stanford-Binet Scale; (551) Wechsler Adult Intelligence Scale; (552) Other tests at the childhood and preschool levels.

561 ADVANCED PSYCHOPATHOLOGY 1Q A 5 (5-0) Prereq 361. Psychodynamics and psychotherapy of the major functional and organic disorders; research literature.

571-572 RORSCHACH TECHNIQUES 2Q A W 2 (2-0) 2 (1-2) Prereq 361 or 561. Administration, scoring and interpretation.

576-577 THEMATIC TEST ANALYSIS 2Q A W 2 (2-0) 2 (1-2) Prereq 361 or 561. Administration and interpretation of thematic tests, with emphasis on the TAT.

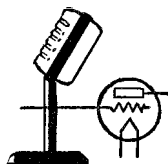
586 PRINCIPLES OF PSYCHOTHERAPY 1Q W 5 (5-0) Prereq 561. Major theoretical and technical approaches to psychotherapy.

671 CLINICAL PRACTICUM a/q V 1-3 R-9 Prereq either 550, 551, 552, 571, 576, or 586. Supervised practice of diagnostic and therapeutic techniques in a clinical setting.

689 (231) CLINICAL INTERNSHIP a/q 3 (0-6) R-9 Prereq acceptable proficiency in clinical techniques. Clinical internship offered by the psychology staff of a hospital, clinic, or other approved agency.

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

RADIO AND TELEVISION



courses are designed to prepare students for occupations in the broadcast media, for effective use of radio and television in connection with occupations in other fields, or for greater appreciation of the media as audience members. Graduates in radio-television have many vocational opportunities as announcers, performers, writers, newsmen, program directors, managers and executives of radio and television stations, or as radio-television specialists in advertising

agencies, and other businesses.

Students work toward either a Bachelor of Arts degree in Journalism with specialization in radio and television, or a Bachelor of Arts degree with a major in Radio and Television. In either case, emphasis is placed on a strong liberal arts background, and approximately three-fourths of the courses for either degree will be taken in the College of Arts and Sciences. In addition to required courses in radio and television, special requirements must be met in curricula of related fields. Most of the radio-television courses are offered by the School of Journalism, but some departments in the College of Arts and Sciences also have offerings in the program. Production of programs for broadcast from the University's studios is included in the course of study. Modern equipment of professional quality in new studios and an adherence to high standards of performance prepare students to make significant contributions and successful careers in the broadcasting profession.

Note: Students wishing to major primarily in radio or television journalism should take the radio-television sequence in Journalism.

The College of Arts and Sciences and the School of Journalism offer the following curriculum leading to a Bachelor of Arts degree with a major in Radio-Television.

University Requirements:	Credits	
English Composition, 101-102-103 recommended	9	
Physical Education	6	
R.O.T.C. (men) Mil. or Air Science 101-102-103, 201-202-203	10	
Group I	12	
	37	37
Major Requirements:		
Group II	25	
Group III	25	
Foreign Language	23-25	
English—201	3	
Speech—118	3	
Drama—212, 231	5	
Journalism—270, 397	6	
	90-92	90-92
32 hours from the following courses:		
Journalism—140, 340, 345, 346, 348, 440, 441, 442, 443, 494		
Speech 241		
Drama 342		32
Free Electives		25-27
		186-188

RELIGION

courses of a non-sectarian nature are offered for general education purposes. Although no degree is offered in Religion, up to 15 credits in the courses listed below may be counted for graduation in other curricula where the professional requirements leave room for such electives. The instruction includes the use of religious literature, including the scriptures, along with church and religious history and contemporary thought and scholarship. No attempt is made to indoctrinate the student in beliefs or creeds.

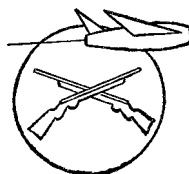


The Montana School of Religion was organized in 1924 by a committee representing the University and several religious denominations for the purpose of making courses in religion available to students. The School is affiliated with the University, under a director who is responsible to a Board of Trustees representing the cooperating denominations and the University.

FOR UNDERGRADUATES

- 118 (18) INTRODUCTORY STUDY OF RELIGION 1Q A W S 2. Basic religious problems which a student must face and work out for himself.
- 123 (23) LIFE AND TEACHINGS OF JESUS 1Q W 3. The origins, backgrounds, problems, occasions, motifs and messages of the four gospels with an attempt to relate the teaching for today.
- 142 (42) RELIGION IN AMERICA 1Q A S 3. The beliefs and practices of Judaism, Protestantism, Roman Catholicism, and representative sects.
- 219 (19) SURVEY OF THE BIBLE 1Q A S 3. The origins, backgrounds, problems, occasions, motifs and messages of the Old Testament and New Testament.
- 224 LIFE AND TEACHINGS OF PAUL 1Q W 3. The origins, backgrounds, problems, occasions, motifs and messages of ten epistles of Paul the apostle and their implications and applications for today.
- 241 (41) CHRISTIANITY TO 1700 1Q W 3. The background and development of the Christian Church, its spread through the Roman Empire and its growth in Europe, through the Reformation.
- 250 (150) BASIC CHRISTIAN CONVICTIONS 1Q W S 3. The doctrines of God, man, Jesus Christ, redemption, and Church, interpreted in meaningful terms for our day.
- 251 CHRISTIAN THINKERS BEFORE 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 since 1800 through study of their writings.
- 304 (75) COMPARATIVE WORLD RELIGIONS 1Q A S 5, Su 3. The living religions of the world, their historical sequence and interrelations.
- 320 THE PROPHETS AND THEIR TIMES 1Q A 3. The old Testament prophets including Isaiah, Jeremiah, and Ezekiel, and twelve other prophets, from Biblical writers' 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 OFFICER TRAINING CORPS



or ROTC courses conducted by Army and Air Force officers at the University are part of the program of the armed forces of the nation.

Unless waived for cause in individual cases, all undergraduate male students other than veterans are required to take the basic course for two years. The advanced courses normally lead to commissions in the forces of the United States. The scope of instruction is indicated below. Most University graduates who complete these courses and secure their commissions are ordered to active duty or sent into further training or special graduate work. In active service, the majority are assigned duties for which their University training has prepared them. A variety of careers in the Army or Air Force is open to them.

AIR SCIENCE

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, the student needs algebra and geometry. It is also recommended that the high school preparation include trigonometry, physics and either French, German or Spanish.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE WITH A MAJOR IN AIR SCIENCE

University Requirements	Credits
English 104-105 or 101-102-103	9-10
Physical Education	6
Air Science 101-102-103, 201-202-203	10
	25-26
Major Requirements	
(Group requirements satisfied herein)	
Mathematics 100, 151, 152, or equivalent	12
Physics 111-112-113 or 221-222-223	15
History 102-103	10
Political Science 101, 202-203, 231, 339	19
Geography 331-332	6
General 151-152-153 or other Group III subjects	15
Foreign Language (French, German or Spanish 101, 102, 103, 213, 215 or equivalent)	23
Air Science 301-302-303, 304 (required), 401-402-403	16
Electives	116
(50% must be in upper division courses. A second major is recommended)	

BASIC COURSE: AIR AGE CITIZENSHIP EDUCATION

101-102-103 (1abc) **FOUNDATIONS OF AIR POWER-1** 3Q A W 2, S 1. (101) Professional opportunities in the U. S. Air Force, fundamentals and potentials of Air Power, military air powers of the world; military research and development; air vehicle industries; and airlines and airways. (102) Aeronautical science, including general aviation, elements of an aircraft, aerodynamics, and guidance, control, navigational and propulsion systems. (103) Basic military training, including exercises and instruction in drill and ceremonies and military customs and courtesies, with emphasis on individual proficiency and team-work.

201-202-203 (2abc) **FOUNDATIONS OF AIR POWER-2** 3Q A W 2, S 1. Prereq 101-102-103. (201) Development of aerial warfare with emphasis on principles of war, employment of forces, changing weapons system, and weapons. (202) Aerial targets, aircraft, missiles, bases and facilities, and aerial operations. (203) Basic military training, with emphasis on functions, duties and responsibilities of cadet non-commissioned officers.

110 (10) **AIR FORCE BAND** 1Q S 1 R-2. Taught by the School of Music, which must approve all admissions. May be substituted for Air Science 103 and 203, except for those sophomores who have been selected for the Advanced Course. Band formations and marching, military ceremonies.

ADVANCED COURSE: AIR FORCE OFFICER DEVELOPMENT

Admission to the Advanced Course is on application of the student and selection by the Professor of Air Science and the President of the University. Once begun, successful completion of the six quarters and the Summer Training Unit is a requirement for all bachelor's degrees.

301-302-303 (103abc) **AIR FORCE OFFICER DEVELOPMENT** 3Q A W S 3. (301) Knowledge and skills required of Air Force junior staff officer, including staff organization and functions, communicating and instruction, and problem solving techniques. (302) Basic principles of leadership psychology, problems in leadership and management, application of principles of problem solving and leadership psychology to simulated and real Air Force problems. (303) Military justice system and preparation for Summer Training Unit. Leadership laboratory: Practical work as junior officers in the Cadet Corps, including commands and command voice, instructing flight and squadron drill in parades, reviews and inspections.

304 (104) **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 (105abc) **LEADERSHIP AND AIR POWER CONCEPTS** 3Q A W 2, S 3 (concurrent enrollment in Geog 331-332 required). (401) Review of officer career fields, specialized training and graduate study; seminar in leadership and management, including studies in the biological and psychological basis of behavior, intense motivation and group relationships. (402) Continuation of leadership-management seminar. (403) Military aviation and the evolution of warfare, and briefing for commissioned service. Leadership Laboratory: Practical work as Cadet officers in staff and command positions, with primary responsibility for the preparation and conduct of cadet drill training program and cadet corps ceremonies. (Material on Military Aspects of World Political Geography is presented in Geog 331-332).

404-405-406 (140abc) **AIR SCIENCE WORKSHOP** 3Q A W S 2. Prereq c/i. Leadership, Command and Staff exercises. (May be counted towards graduation by Air Science majors only).

MILITARY SCIENCE

HIGH SCHOOL PREPARATION. In addition to the general requirements for admission to the University, the student needs algebra and geometry. It is also recommended that the high school preparation include trigonometry, physics and either French, German or Spanish.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE WITH A MAJOR IN MILITARY SCIENCE

University Requirements	Credits	
English 104-105 or 101-102-103	9-10	
Physical Education	6	
Military Science 101-102-103 and 201-202-203	10	25-26
Major Requirements		
(Group requirements satisfied herein)		
Mathematics 100, 151, 152 or equivalent	12	
Physics 111-112-113 or 221-222-223	15	
History 102, 103	10	
Political Science 101, 203	8	
General 151-152-153 or other Group III subjects	15	
Geography 331-332	6	
Foreign Language (French, German or Spanish 101-102-103, 213, 215, or equivalent)	23	
Military Science 301-302-303, 401-402-403, 313	18	107
Electives		
(50% must be in upper division courses. A second major in one of the areas listed above is recommended)		54-55
		186

BASIC COURSE: MILITARY TRAINING FOR CITIZENSHIP

101-102-103 (1abc) **INTRODUCTION TO THE ARMY** 3Q A 2, W 1, S 2. Enter any quarter. (101) Army organizational principles,

missions, and chain of command; practical instruction in Individual Weapons and Marksmanship with emphasis on preliminary marksmanship techniques and instructional methods to enable the student to coach others. Leadership, Drill and Command, basic and progressive training in leadership through practical exercises and instruction in drill, ceremonies, military customs and courtesy. Emphasis placed on teamwork and proficiency required of the individual. (102) American Military History, emphasizing men, factors and events which have led to the organizational, tactical and psychological patterns found in our Army today. (103) Continuation of instruction in individual Weapons and Marksmanship and Leadership Drill and Command from 101.

201-202-203 **ADVANCED INDIVIDUAL TECHNIQUES** 3Q A 2, W 1, S 2. Prereq 101-102-103. Enter any quarter. (201) Map and Aerial Photograph Reading to include their reading and employment, marginal information, military symbols, orientation, resection and the Military Grid References System: Leadership, Drill and Command, a continuation of 103 with emphasis on functions, duties, and responsibilities of junior leaders. (202) Recoiless and Indirect Fire Weapons and Gunnery, to include mechanical functioning, nomenclature, principles of fire control and techniques of employment. Familiarization with automatic weapons. (203) Leadership, Drill, and Exercise of Command, a continuation of Leadership, Drill and Command from 201. Familiarization with automatic Weapons and Comprehensive Course on U. S. Army and National Security.

ADVANCED COURSE: OFFICER TRAINING

Prepares the student for a commission as a Second Lieutenant in any branch of the United States Army Reserve. Admission is on application of the student and selection by the Professor of Military Science and the President of the University. Once begun, successful completion of the six quarters and summer camp is a requirement for all bachelor degrees, unless sooner honorably discharged.

301-302-303 (111abc) **PRINCIPLES AND TECHNIQUES OF THE MILITARY LEADER** 3Q A W S 3. Enter any quarter. (301) Leadership and instructional principles, including characteristics, qualities, requirements, problem solving and theoretical and practical exercises in giving military instruction; organizational structure and functions of the branches of the Army. Leadership, Drill and Command—to include practical work in instructing and directing military drill of individuals and small units. (302) Small unit tactics, including the principles and techniques of leading small units from the squad to the company in offensive and defensive operations. (303) Continuation of small unit tactics and introduction to Army Communication Systems. Orientation of Summer Camp Activities. Continuation of Leadership, Drill and Command from 301.

313 (113) **SUMMER CAMP.** No credit. Six weeks at an Army training center taken after completion of 303 from middle of June through first of August. Practical military training and tactical exercises with emphasis on the development of discipline and qualities of leadership.

401-402-403 (112abc) **MILITARY MANAGEMENT** 3Q A W S 3. Prereq 301-302-303. Enter any quarter. (401) Operations to include staff organizations and procedure 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 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 court-martial procedure with practical work in moot court. (403) Continuation of Military Administration, orientation on life in active military service, continuation of Leadership, Drill and Command from 401.

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 for election of additional secretarial courses if added proficiency is desired. The work in home economics includes the study of nutrition, home equipment, house planning and furnishing, budgeting, child development, and family living. In addition, a general education is provided in areas outside the major fields.

SPECIAL REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN SECRETARIAL-HOME ARTS. In addition to the requirements listed below, the student must satisfy the foreign language requirement as listed earlier in the Guidebook.

University Requirements	Credits	
English Composition	9-10	
Physical Education	6	15-16
Group Requirements		
Group I	12-15	
Group III (Humanities 151, 152, 153 recommended)	12-15	24-30
Major Requirements		
Home Economics 102, 104, 141, 155, 157	15	
210	3	
242	3	
246 or 346	4	
301	2	
303	3	
308	3	
366, 367, 368 or Soc. 311	3	
1 other course above 300	3	
	39	39

Home Economic 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 184; 2 yrs. in H.S., no cr. in 184 or 185)	15	
187	5	
190	1	
192	2	
193	2	
194	2	
201	5	
384	3	
	39	39

Business Administration courses with credit toward major with 186 total credits not to exceed 39 cr.

Special requirements outside major.

Foreign Language (3 quarters or placement test)	15	
Economics 201	3	
Psychology 110	5	
History 101, 102, 103 (2 quarters)	10	
Political Science 101	4	
Free Electives		37
		25
		186

SOCIAL WELFARE

explores the ways in which social problems affect people; the agencies which help people deal with these problems; and the methods used in such endeavor. Social Welfare courses involve case records and some field work or observation in addition to regular class work. Broad studies in other social sciences are required.

Those seriously considering a career in the field should plan on the two years of graduate professional

training for which the course is preparatory. Social workers are employed in such positions as caseworkers, group workers, supervisors and administrators in public and private social agencies, courts, hospitals, mental-health clinics and youth serving organizations.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE. In addition to the general requirements for graduation listed earlier in the Guidebook, the following courses must be completed for the Bachelor of Arts degree with a major in Social Welfare: 50 credits in departmental courses including at least 30 credits in Social Welfare. A foreign language is required as listed earlier in the Guidebook.

During the first two years, the following courses should be taken to provide a broad foundation: Anthropology 152 or 153; Economics 201-202-203; History 102-103 or 252-253; Political Science 202-203; Psychology 110; Sociology 101 and 102; and Social Welfare 181.

During the second two years, one course numbered 300 or above must be taken in each of the following fields: Anthropology, Economics, History, Political Science, Psychology, and Sociology. Work in the Community Services Laboratory during the senior year is required up to a maximum of 12 credit hours.

GENERAL INFORMATION: The undergraduate major in Social Welfare is available for those wishing a practical orientation toward social problems. Both theory and practice are emphasized to achieve the effectiveness needed on the job. Those wishing to enter graduate schools of social work will find the program designed for this purpose as well as for effective citizen participation.

The undergraduate program features the interdisciplinary approach—courses selected from the several social sciences to serve as a foundation for a limited number of courses which present Social Welfare content and method. Group methods are freely used.

FOR UNDERGRADUATES

181 (30) **THE FIELD OF SOCIAL WELFARE** 1Q W 5. Social welfare functions. Development of modern social welfare and the distinctive features of the profession.

361 (170b) **INTRODUCTION TO RECREATION LEADERSHIP** 1Q A 3 Prereq Sociology 101. Sociology of play, 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 361.

362 (170a) **RECREATION LEADERSHIP (SOCIAL RECREATION)** 1Q W 3 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 (170c) **RECREATION LEADERSHIP (CAMP LEADERSHIP)** 1Q S 3 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.

382 (S125) **GROUP METHODS IN TEACHING** 1Q Su only 3. 5 weeks. 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

381 (S124) **JUVENILE DELINQUENCY** 1Q Su 3. Nature and extent of the problem. The role of courts, social agencies, and schools in its prevention and treatment.

383 (132) **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 (136) **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(130) **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.

482 (133) **COMMUNITY RELATIONS** 1Q A 4 Su 3 Prereq 10 credits in Social Welfare. The place of the professional person in community life, his responsibilities as a citizen, his philosophy and ethics especially as they relate to the community, his contributions to community welfare and his concern for human needs and problems.

483 (134) **FIELD PRACTICE; COMMUNITY SERVICES LABORATORY** 3Q A W S V 2-4 R-12 Prereq 181. A program of self-help project experiences in dealing with community needs and resources. Theoretical analysis of experienced situations. Learning by means of the laboratory method.

484 (135) **CHILD WELFARE SERVICES** 1Q W 4 Prereq 181. Development, organization, functions and methods of public and voluntary programs designed to meet the special needs of children and their families, foster home and institutional care, adoption services, school social services, youth services, etc.

485 (190) **ADVANCED PROBLEMS** a/q V 1-2 R-6 Prereq c/i.

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).

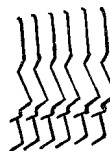
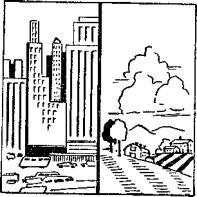
Graduates may engage in teaching, research, or government service.

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 guidebook, 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 Guidebook.

At least 35 of the 50 major credits must be in sociology courses, including Sociology 101, 201, 205, and 303. Anthropology 152 or 153 and Social Welfare 181 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 Psychology 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 credits of upper division sociology; Economics 201-202-203, 311 and at least 12 additional upper division credits of economics.

MASTER OF ARTS IN GUIDANCE AND COUNSELING. See copy under Graduate School.

FOR UNDERGRADUATES

101 (16) INTRODUCTORY SOCIOLOGY 1Q A W S Su 5. A general study of interhuman relations.

102 (17) SOCIAL PROBLEMS 1Q A W S Su 5 Prereq 101. A general study of social and personal disorganization.

202 (26) COLLECTIVE BEHAVIOR 1Q W 3. Prereq 101 or Psych 110. Theories relating to mass behavior. The characteristics of such social aggregates as crowds, mobs, and social movements.

204 (100) COURTSHIP AND MARRIAGE 1Q a/q 3. A general consideration of factors in courtship and marriage.

205 ELEMENTARY SOCIAL STATISTICS 1Q a/q 2. Simple statistics and graphic techniques commonly used in the social sciences.

206 URBAN SOCIOLOGY 1Q S 4 Prereq 101. The rise and development of cities; social organization of the city; problems of urban communities.

310 (25) DEVELOPMENT OF SOCIAL THOUGHT 1Q A 4 Prereq 101 or 102. Social thought from earliest times to the establishment of sociology.

FOR UNDERGRADUATES AND GRADUATES

302 (117) SOCIAL STRATIFICATION 1Q S Su 3 e/y Prereq 101 or c/i. The class system in contemporary society in terms of social class theory, class behavior, and current research in social stratification in American society.

303 (118) SOCIAL SCIENCE METHODS 1Q A 3 Prereq 10 credits in Social Sciences. The methodology, techniques and instruments of measurement used in the social sciences.

304 (120) POPULATION 1Q S 4 Prereq 101. A quantitative and qualitative analysis of world population; vital statistics and population change, migration, and immigration.

306 (122) CRIMINOLOGY 1Q S 5 Prereq 101 or 102. The causes, prevention, detection, and correction of crimes.

307 (127) SOCIAL CONTROL 1Q W 3 e/y Prereq 101. Institutional and non-institutional processes and methods by which persons and groups are controlled.

309 INDUSTRIAL SOCIOLOGY 1Q S 4 Su 3 Prereq 101 or Psych 110. Work plants such as factories, offices, and stores; work group processes and applied problems; industrial relationships in the community.

312 REGIONAL DEVELOPMENT 1Q Su 1959 only 8 R-16 Prereq 10 credits in Social Science. An area study project by means of travel in the Northern Rocky Mountain States (Montana, Wyoming, Idaho, and Washington) and the Western Canadian Provinces (British Columbia and Alberta) beginning at Missoula and covering selected parts of the states and provinces. An intensive study of the social and economic characteristics of the area. Open to auditors.

313 RURAL SOCIOLOGY 1Q W 4 Prereq 101. Organization and social relationships of rural life; the rural community; problems of rural life. Special emphasis on Montana and the Northwest.

401 (126) FOUNDATIONS OF MODERN SOCIOLOGY 1Q W 4 Prereq 101. Selected sociological problems arising from the theories of Durkheim, Weber, and contemporary writers.

402 (129) THE FAMILY 1Q W 5 Prereq 101. Comparative, historical and analytical study of the family.

403 (190) ADVANCED PROBLEMS a/q V 1-2 R-6 Prereq c/i.

405 SOCIOLOGY OF WORK 1Q A 3 Prereq 101. Structure and function of occupations and professions. Problems of organization and relationships of work groups.

406 FIELD OBSERVATION 1Q S 3 Prereq 101 and 205 or 303. Interviewing procedures and social science research; guided experiences in interviewing related to actual research programs.

407-408-409 (195abc) SEMINAR 3Q A W S 2 Prereq 10 credits in sociology. Enter any quarter.

410 PENOLOGY 1Q A 3 Prereq 306. Theory and practice of penal methods in correctional institutions. Probation and parole.

411 ADVANCED GENERAL SOCIOLOGY 1Q W 4 Prereq 101, 10 upper division credits in sociology or c/i. Review and analysis of major sociological theory and research.

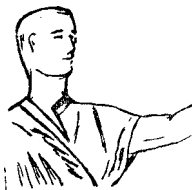
502 ADVANCED METHODS 1Q A 5 Prereq 303 or =. Required of all graduate students in sociology.

FOR GRADUATES

501 (201) GRADUATE RESEARCH a/q V 5 R-10.

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

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. Also, as a result of their training, graduates in Speech can compete successfully in various other fields.

The curriculum in Speech is designed to provide cultural background and technical training in oral communication which will prepare the student for competence in social situations, for leadership in a chosen profession, and for proficiency in professional speech work.

The Bachelor or Arts and Master of Arts degrees are offered.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE. In addition to the general requirements for graduation listed earlier in the guidebook, the following requirements must be completed for the Bachelor of Arts degree with a major in Speech: a minimum of 45 credits in Speech, including Speech 111, 112, 118, 214, 231, 261, 330, 353, and either 344 or 345; and Drama 212. The foreign language requirement listed earlier in the guidebook must be satisfied. A special comprehensive examination is required of all candidates for honors in Speech.

GRADUATE STUDY. In addition to meeting the requirements above, students should take Speech 318, Speech Pathology 330, Drama 212, and present evidence of proficiency in academic work.

FOR UNDERGRADUATES

111 (20) 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 discriminative listening as these contribute to effective communication and human relations.

112 (21) ARGUMENTATION 1Q A W S 5. The principles by which belief and conduct are influenced through appeals to logical reasoning. Attention to evidence, analysis, logic, fallacies, refutation, rebuttal, and their application to current economic, social and political problems.

113 (22) PARLIAMENTARY PROCEDURE 1Q S 1. The principles and practice of parliamentary procedures used in the conduct of fraternal, professional and community meetings.

118 (48) VOICE AND DICTION 1Q A W S 3. Designed to establish good habits of speech through analysis of each student's voice, articulation, and pronunciation. Improving voice quality, flexibility, and standards of good diction.

119 PHONETICS 1Q A 3. The analysis of speech sounds, utilizing the phonetic alphabet for the purpose of improving individual speech.

214 (42) DISCUSSION TECHNIQUES 1Q A 3. Study and practice in the techniques in making inquiries into and solving problems by the means of group thinking.

215 (76) PUBLIC PERFORMANCE 1Q A W S V 1-2 R-6 Prereq c/i. The principles of public performance. Practice in presenting before public audiences oral readings, lecture recitals, choral reading or public addresses.

241 (45) RADIO-TELEVISION SPEECH 1Q W 3 Prereq 118 and Journalism 140. Principles and practice in adapting pronunciation, articulation and vocal pattern to the various forms of speaking for radio and television. Analysis of individual voices by tape recording.

261 (69a) BEGINNING ORAL INTERPRETATION 1Q A 3 Prereq 118. Development of responsiveness to the meaning of literature, and of the ability to read orally so as to communicate this appreciation to others.

262 (69b) INTERMEDIATE ORAL INTERPRETATION 1Q W 3 Prereq 118 or 261. Practice in communicating all forms of literature in an appropriate and individual style. The form and content of literature as they affect the understanding and performance of the interpreter.

265-266-267 (67abc) DEBATE 3Q A W S 2 Prereq 112, or c/i. (265) The techniques, strategy and style of debate; (266) Intercollegiate debating; (267) famous historical debates.

FOR UNDERGRADUATES AND GRADUATES

316 (161) 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 (163) SPEECH IN TEACHING AND LEARNING 1Q A 3 Prereq 5 cr in Speech. The speech competence of the teacher, the use of speech as a teaching device, and the principles by which the teacher works with the speech of his students.

318 (148) APPLIED PHONETICS 1Q S 3 Prereq 119 or =. The recognition and production of the sounds of spoken English, with an analysis of their phonetic structure.

70—SPEECH PATHOLOGY AND AUDIOLOGY

321 (121) THE TEACHING OF SPEECH 1Q W 3 Prereq 10 credits in Speech. Planning the speech curriculum and its relationship to other school subjects; instructional materials, and methods of teaching Speech.

322 (122) 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 (143) ADVANCED PUBLIC SPEAKING 1Q S 3 Prereq 10 credits in Speech. Theories of speech composition, models of contemporary public address.

344 (147) SURVEY OF RHETORIC 1Q A 3 Prereq 10 credits in Speech. Ancient, medieval, and modern rhetoric. The contributions of Socrates, Plato, Aristotle, Cicero, Quintilian, Longinus, St. Augustine, Ward, Campbell, Blair, Whately, and John Quincy Adams to modern rhetoric.

345 (150) 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 (164) THE PSYCHOLOGY OF SPEECH 1Q A 3 Prereq Psych 110 and 10 credits in Speech. Speech behavior in terms of relevant psychological theory and research. The scientific study of communication processes.

353 (167) GENERAL SEMANTICS 1Q S 3 Prereq Psych 110 and 5 credits in Speech. Human relations, as affected by language; principles such as function, order, relations, evaluations, and abstractions in language.

369 (169) ADVANCED ORAL INTERPRETATION OF LITERATURE 1Q S 3 Prereq 261, 262. Preparing programs for various occasions. The oral interpretation of major pieces of literature.

371 PRINCIPLES OF SOCIODRAMA 1Q W 3 Prereq 5 credits in Speech. Principles and practice of role-playing as a technique of communication; the development of the spontaneous-creative and the extemporaneous types of sociodrama.

374 (174) HISTORICAL PAGEANT DRAMA 1Q W S Su V 3-5 Prereq 5 credits in Speech. Communication techniques of organizing programs, in schools and in the community, dramatizing sequences in the history of the community; writing and staging of a production based upon such data.

441-442-443 RADIO-TELEVISION PRODUCTION AND DIRECTION. (See Journalism).

451 (130) LANGUAGE AND COMMUNICATION 1Q W 3 Prereq 352 and 353. Factors influencing communicative behavior. Research needs and design.

490 PROBLEMS a/q V R-6 Prereq 25 credits in Speech and c/i.

499 (199) SEMINAR 3Q A W S V R-10 Prereq 18 credits in Speech. Individual and group study and research on assigned areas of speech.

FOR GRADUATES

541 (40) PERSUASION 1Q S 3 Prereq 343 or 344. Influencing belief and conduct by use of logical reasoning, motive appeals, suggestion, style, and other available means.

598 RESEARCH METHODS 1Q A Su 2 Prereq 18 credits in Speech.

600 RESEARCH a/q V R-10 Prereq 18 credits in Speech.

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

SPEECH PATHOLOGY AND AUDIOLOGY

Individuals with speech and hearing disorders constitute our largest group of exceptional persons. Study in the field of speech pathology and audiology evaluates these disorders, their causes and remedial principles.

Students interested in these studies take their Bachelor of Arts degree with a major in speech, but vary their course selection sufficiently to obtain the academic requirements necessary for Basic Speech Certification, or Basic Hearing Certification, or both, as designated by the American Speech and Hearing Association Standards. The clinical requirements leading to the various degrees are also sufficient to provide the necessary supervised clinical practice required in these certifications.

A thorough understanding of a person with speech or hearing disorders, or both, requires that the student be well founded in many areas of behavioral and natural science. Consequently the courses required are offered by many departments. Students study in Psychology, Speech, Education, Physiology, Anatomy, Acoustics, and Sociology as well as take specific courses in Speech Pathology and Audiology.

Graduates at the B.A. level, usually find positions in public school systems or clinics as speech and hearing therapists. A Master's Degree in Speech Pathology and Audiology is generally required for the many positions available in hospitals, clinics and government programs, or as supervisors in the larger school systems. A well qualified person in this field may go into college teaching, into research or into supervisory clinical positions. Positions in this field at the present time and in the foreseeable future far exceed the number of trained individuals.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN SPEECH for students emphasizing Speech Pathology and Audiology: In addition to the general requirements listed earlier in the guidebook, the following special requirements must be satisfied: at least 29 hours in speech pathology and audiology including 231, 330, 331, 335-336, 340, 342, and 6 hours of 333; Psychology 110, 230, 360; Speech 111, 118 and Zoology 202. Other courses recommended for majors in this area are Speech 352, 353; Psychology 210, 211, 220, 350, 351, 352; Sociology 101, 202, 311; Home Economics 366, 367, and 368; and Educ 200 205, 301, 334, and 452. The foreign language requirement listed earlier in the guidebook must be satisfied.

FOR UNDERGRADUATES

231 VOICE SCIENCE 1Q W Su 3 Prereq Speech 119. Basic scientific concepts and principles fundamental to the understanding of voice and speech phenomena.

FOR UNDERGRADUATES AND GRADUATES

330 INTRODUCTION TO SPEECH PATHOLOGY 1Q A S Su 3. The causes and general principles of treatment of speech disorders, and speech correction as an educational and clinical field.

331 DIAGNOSIS AND APPRAISAL OF SPEECH DISORDERS 1Q A Su 4 Prereq 231, Corequisite 330. The basic tools and techniques employed in the diagnosis and appraisal of speech and hearing problems. Some supervised clinical practice in out-patient clinics.

333 SPEECH CLINIC PRACTICUM 3Q A W S Su 2 R-6 Prereq or Corequisite 331. Sixty clock hours per quarter of supervised clinical practice in the Speech and Hearing Clinic.

335-336 SPEECH PATHOLOGY 2Q W S Su 3 Prereq 331. (335) Theory of voice and articulation retraining. Responsibilities in outpatient clinic in examination, diagnosis and treatment of children and adults. (336) Theory and remedial principles of stuttering. The nature, etiologies and remedial principles of the major neuro and organic pathologies of speech.

340 INTRODUCTION TO AUDIOLOGY 1Q S Su 4 Prereq 330. The basic psychophysical dimensions of the auditory mechanism and a survey of the fundamentals and principles related to the measurement of hearing loss.

342 COMMUNICATION PROBLEMS OF THE HARD OF HEARING 1Q A Su 3 Prereq 340. The effects of hearing disorders of the individual and principles involved in the rehabilitation techniques of hard of hearing children and adults. Principles of lip reading. Use of hearing aids.

433 ADVANCED CLINICAL PRACTICUM 1Q A W S Su V 1-3 R-6 Prereq 6 hours of 333. Supervised clinical practice beyond that provided in the preceding clinical courses.

435 METHODS IN PUBLIC SCHOOL SPEECH AND HEARING THERAPY 1Q A Su 2 Prereq 333, 335, 336, 342. Methods in speech and hearing therapy used in public school programs with emphasis on the elementary level.

436 PRACTICUM IN PUBLIC SCHOOL SPEECH AND HEARING THERAPY 1Q A W S V 2-4 Prereq Educ 301, Corequisite 435. Establishing, integrating, and conducting a speech and hearing program under supervision in a cooperating public school. Thirty clock hours of clinical practice for each credit.

490 PROBLEMS a/q V R-6 Prereq c/i.

FOR GRADUATES

531 STUTTERING 1Q S Su 3 Prereq 336 or =. Lectures, readings, demonstrations and observations covering the research, theory, and therapeutic principles of stuttering.

532-533 ORGANIC DISORDERS OF SPEECH 2Q W S Su 3 Prereq 336 or =. (532) Theory and research pertaining to the various organic pathologies of speech with specific emphasis on cleft palate, laryngectomy and miscellaneous organic pathologies of voice. (533) Theories, research, and remedial techniques in the areas of cerebral palsy and aphasia.

540 MEASUREMENT OF HEARING LOSS 1Q A Su 3 Prereq 340 or =. The techniques employed in evaluation of hearing loss. Inner-ear type hearing losses and their differential responses to audiological examination.

542 CLINICAL AUDIOLOGY: REHABILITATION 1Q W Su 3 Prereq 342 or =. Theory and research pertaining to the various methods of speech and language rehabilitation of hard of hearing adults and children

590 ADVANCED PROBLEMS a/q V R-9 Prereq c/i.

598 RESEARCH METHODS 1Q A Su 2 Prereq 18 credits in Speech Pathology and Audiology.

599 SEMINAR 1Q W Su V 1-2 Prereq 18 credits in Speech Pathology and Audiology.

600 RESEARCH a/q V R-10 Prereq 18 credits in Speech Pathology and Audiology

699 THESIS a/q V R-15.

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. Instruction proceeds through use of textbooks, collateral readings, laboratory and field work.

Graduates find employment with state fish and game or conservation departments or federal agencies such as the Fish and Wildlife Service, the National 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 guidebook, the following special requirements must be completed for the degree of Bachelor of Science in Wildlife Technology.

Required courses in the first two years and in the last two years in the Aquatic and Terrestrial options are listed below.

Students electing the Aquatic option should elect additional courses from the following: Zoology 308, 309, 328, 361; Botany 368; Chemistry 123, 245; General 450; Geology 100. It is recommended that the student plan to attend a Biological Station for one summer.

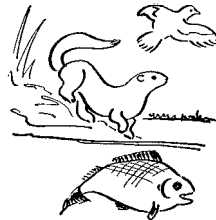
Students electing the Terrestrial option should elect additional courses from the following: Zoology 303, 307, 310, 328; Forestry 210; Geology 100; Bacteriology 200; General 450.

CURRICULA IN WILDLIFE TECHNOLOGY

Freshman Year			
	A	W	S
	Cr.	Cr.	Cr.
Bot 111-112 or 123—General Botany	5	5	3-5
Chem 101-102-103—General Chemistry	5	5	5
Engl 104-105—Freshman Composition	5	5	5
Math 151 (and 100 if required by placement)			
Freshman Math	5		
H&PE 101-102-103—Physical Education	1	1	1
ROTC 101-102-103—Military or Air Science (Men)	2	2	1
or 2	2	1	2
	16-18	16-18	16-18
Sophomore Year			
Zool 104-105, 201—Elem. Zoology, Comparative Vertebrate Anatomy	5	5	5
Phys 111, 112 or 113—General Physics	5	5	5
Group Requirements (5 or 10 credits winter or spring depending on physics 112 or 113)	5	5	5
H & PE 201-202-203—Physical Education	1	1	1
ROTC 201-202-203—Military or Air Science (Men)	2	2	1
or 2	2	1	2
	16-18	16-18	16-18
Aquatic Option			
Junior Year			
For 252, 250—Surveying, Mapping	5	2	
Bot 225, 365—Plant Physiology, General Systematic Botany		5	5
Zool 310, 350, 307—Ichthyology, Ecology of Wildlife Populations, Aquatic Biology	5	3	5
Math 125—Statistics		5	
Group requirements	5		5
	15	15	15

Senior Year			
Zool 308 or 309—Ornithology, Mammalogy	5		5
Zool 365—Entomology			5
Zool 413—Fishery Science		3	
Bot 355—Plant Ecology			5
For 360—General Range Management	5		
Elective (vary depending on Zool. 308 or 309)	5	12	
	15	15	15
Terrestrial Option			
Junior Year			
For 252, 250—Surveying, Mapping	5	2	
Bot 225, 365—Plant Physiology, General Systematic Botany		5	5
Zool 309, 350, 308—Mammalogy, Ecology of Wildlife Populations, Ornithology	5	3	5
Math 125—Statistics		5	
Group Requirements	5		5
	15	15	15
Senior Year			
For 470, 360—Advanced Wildlife Management, General Range Management	5	5	
Bot 366, 355—Agrostology, Plant Ecology		5	5
Zool 202—Human Physiology			5
Electives	10	5	5
	15	15	15

ZOOLOGY is the study of animals—how they are put together, how their bodies work, and how they adjust to their surroundings. It is a basic science for many professional fields such as medicine, pharmacy, wildlife, and physical education.



The Master of Arts (or Master of Science) degree is also offered.

Undergraduate courses involve much laboratory work as well as opportunities for field work. During the summer extensive field experience is available at the Biological Station maintained on Flathead Lake for qualified upperclass and graduate students.

Graduates become high school teachers or, after advanced studies, instructors in colleges and universities. Others enter state or federal government service in health and conservation agencies. Many, with further training, enter medicine or related fields. A few establish themselves as fish culturists, fur farmers, pest control experts, and so on.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN ZOOLOGY. In addition to the general requirements for graduation listed earlier in the guidebook, the following special requirements must be completed for the Bachelor of Arts degree with a major in Zoology: 45 credits in Zoology including Zoology 104-105, 106, 201, 302, 328, 340, 341, 385, 1 credit of 429.

The following must also be completed: Botany 121-122, 123 or 100 or 124 or 365; Chemistry 101-102-103 or 121-122 and 123 or 260; and Physics 111-112-113 or 221-222-223.

Students who contemplate graduate work in Zoology should elect during their junior or senior years, Bacteriology 200 and Zoology 303, 305.

The foreign language requirement listed earlier in the guidebook must be satisfied. French, German or other language approved by the department may be used. It would be wise for prospective graduate students to secure a reading knowledge of both French and German if possible.

The Pre-medical Sciences student may earn a degree in Zoology by completing requirements in that curriculum and presenting a total of 35 credits in Zoology or related fields as follows: Zool 104, 105, 201, 302, 285; any one course from Zool 106, 308, 309, 310, 321, 328, 364, 365, 366, 461; any one course from Microbiology and Public Health, or from Botany or one course from Zool 303, 305, 333, 340, 341.

Senior examinations are given only to candidates for honors.

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

SUGGESTED CURRICULUM IN ZOOLOGY

Freshman Year			
	A	W	S
	Cr.	Cr.	Cr.
Zool 104-105-106—Elem Zool, Field Zool	5	5	3
Eng 104-105—Freshman Composition	5	5	
Math 151 (and 100 if required by placement)			
Freshman Math			5
For Lang 101-102-103—Elem. French or German	5	5	5
H&PE 101-102-103—Physical Education	1	1	1
ROTC 101-102-103—Military or Air Science (Men)	2	2	1
or 2	2	1	2
	16-18	16-18	14-16

Sophomore Year

Chem 101-102-103 or 121-122-123 or 260—Gen'l Chem., Inorganic Chem., or Qualitative Analysis	5	5	5
For Lang 213, 215—Intermediate, Advanced French or German	4	4	4
Zool 201—Comparative Vertebrate Anatomy	5	5	5
Group Requirements	6	6	6
H&PE 201-202-203—Physical Education	1	1	1
ROTC 201-202-203—Military or Air Science (Men)	2	2	2
or	2	1	2
	16-18	16-18	16-18

Junior Year

Zool 340, 341—Vertebrate Physiology	5	5	5
Bot 121-122-123—Gen'l Botany, Spring Flora	5	5	3
Zool 302—Vertebrate Embryology	5	5	5
Group requirements or electives	5	—	12
	15	15	15

Senior Year

Zool 385, 328—Genetics, Animal Ecology	5	5	5
Phys 111-112-113 or 221-222-223—Gen'l Physics	5	5	5
Zool 429—Biological Literature	1	—	—
Electives	4-5	10	5
	15-16	15	15

FOR UNDERGRADUATES

Courses also offered at Biological Station (*courses only at Biological Station): 106, 308, 309, *364, 365, *366, 431, 433, 434, 436, *461, *521, *551, *561, 600, 699.

101 (10) GENERAL ZOOLOGY 1Q A W Su 5 (3-4). Certain basic physiological principles as exemplified by the study of the characteristics of animal protoplasm and selected invertebrates and a vertebrate form.

104-105 (14ab) ELEMENTARY ZOOLOGY 2Q A W 5 (3-4). A survey of the invertebrates and the prochordates, anatomy, physiology, phylogeny and various zoological principles.

106 (15) FIELD ZOOLOGY 1Q S 3 (2-5) Su at Biological Station Prereq 101 or 104, 105. Collection, identification and preservation of animals. Field work.

201 (23) COMPARATIVE VERTEBRATE ANATOMY 1Q S 5 (3-4) Prereq 101 or 104 or one laboratory course in Zool. The comparative anatomy, morphology, and phylogeny of the vertebrates.

202 (24) HUMAN PHYSIOLOGY 1Q S Su 5 (3-4) Prereq Sophomore standing or two quarters of college Zool. The normal physiology of blood circulation, respiration, digestion, excretion, irritability, locomotion, coordination, and reproduction.

284 (126) EVOLUTION 1Q W 3 (3-0) Prereq 106 and Bot 121, 122, 123. 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 Bot 284.

FOR UNDERGRADUATES AND GRADUATES

301 (101) GENERAL COMPARATIVE EMBRYOLOGY 1Q A 5 (3-4) alternate years Prereq 311-312. The early stages of development of the invertebrates and vertebrates, including meiosis, fertilization, cleavage, formation of the germ layers and early organogenesis.

302 (102) VERTEBRATE EMBRYOLOGY 1Q W 5 (3-4) Prereq 201. The early stages of development of the vertebrates including organogenesis, with emphasis on birds (chick) and mammals (pig).

303 (Bact 103) PARASITOLOGY 1Q W 5 (3-4) Prereq 104-105. Morphology, physiology, systematics, and life histories of representative animal parasites and techniques of their diagnosis, treatment, and control.

305 (105) HISTOLOGY AND MICROTÉCHNIQUE 1Q W 5 (3-4) Prereq 201, 101 or 105 and c/i. Basic tissues are studied and a limited amount of work is done on organology. Microtechnique with emphasis on the paraffin method.

307 (107) AQUATIC BIOLOGY 1Q A S 5 (3-7, 10) Prereq 106 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.

308 (108) 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 (109) 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 (110) 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 (111ab) 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.

321 PROTOZOOLOGY 1Q A 5 o/y Prereq 104-105. Taxonomy, structure, natural history, physiology, and ecology of non-parasitic protozoans.

328 (128) ANIMAL ECOLOGY 1Q S 5 (2-8) e/y Prereq 106, Bot 123 or =. Zoo 307 or 311, 312 recommended. The relationships between animals and their environment with special emphasis on the invertebrates. Saturday field trips.

333 (133) VERTEBRATE ENDOCRINOLOGY 1Q S 3 (2-4) Prereq 201, 302 or c/i. 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 (140ab) VERTEBRATE PHYSIOLOGY 2Q A W 5 (3-4)

Prereq 201 or =, three quarters of college chemistry or c/i. (340) General physiological properties of protoplasm; blood, body fluids, and circulation; respiration and excretion; (341) digestion, nutrition and intermediary metabolism; excitation, conduction, responses, senses; endocrines and reproduction.

350 (150) ECOLOGY OF WILDLIFE POPULATIONS 1Q W 3 (3-0) Prereq 201. The population dynamics of wildlife species, with emphasis on recent literature. Productivity, turnover, carrying capacity, predation, methods of census and harvest.

364 (164) NATURAL HISTORY OF INVERTEBRATES 1Q Su 3 (5-12) Prereq 105. The ecology, taxonomy and distribution of the invertebrates of the Rocky Mountain area. Although all invertebrates other than insects and helminths are studied, emphasis is placed upon the molluscs of the region.

365 (165) ENTOMOLOGY 1Q S 5 (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 (166) AQUATIC INSECTS 1Q Su 3 (3-12) Prereq 104-105 or 101 and one additional Zool course. The insect fauna, both immature and adult, aquatic habitats of Western Montana.

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

413 (113) FISHERY SCIENCE 1Q W 3 (3-6) Prereq 307, 310. The problems involved in investigations on fisheries biology with an analysis of, and some actual field experience in, methods employed in attacking these problems. Field trips.

429 (129) BIOLOGICAL LITERATURE 2Q A W 1 (2-0) Prereq 20 credits in Bot or Zool. Student reports of literature of the trend of investigation and experimentation in biological fields.

431 (131) PROBLEMS IN VERTEBRATE MORPHOLOGY AND TAXONOMY 1Q a/q V 1-5 Prereq 25 credits in Zool including adequate background courses in the subject and c/i. Primarily a problems type course involving semi-independent work. By variation of content, the course may be repeated during succeeding quarters.

432 (131) PROBLEMS IN VERTEBRATE PHYSIOLOGY 1Q a/q V 1-5 Prereq 25 credits in Zool including adequate background courses in the subject and c/i. Semi-independent work. By variation of content, the course may be repeated during succeeding quarters.

433 (131) PROBLEMS IN VERTEBRATE ECOLOGY 1Q a/q V 1-5 Prereq 25 credits in Zool including adequate background courses in the subject and c/i. Primarily a problems type course, involving semi-independent work. By variation of content, the course may be repeated during succeeding quarters.

434 (132) PROBLEMS IN INVERTEBRATE MORPHOLOGY AND TAXONOMY 1Q a/q V 1-5 Prereq 25 credits in Zool including adequate background courses in the subject and c/i. Semi-independent work. By variation of content, the course may be repeated during the succeeding quarters.

435 (132) PROBLEMS IN INVERTEBRATE PHYSIOLOGY 1Q a/q V 1-5 Prereq 25 credits in Zool including adequate background courses in the subject and c/i. Semi-independent work. By variation of content, the course may be repeated during succeeding quarters.

436 (132) PROBLEMS IN INVERTEBRATE ECOLOGY 1Q a/q V 1-5 Prereq 25 credits in Zool including adequate background courses in the subject and c/i. Semi-independent work. By variation of content, the course may be repeated during succeeding quarters.

461 (161) LIMNOLOGY 1Q Su 6 (5-25) Prereq 101 or 105 and Chem 103 or 123. Ecology of lakes, streams and ponds, with emphasis on the physical, chemical and biotic factors which determine their biological productivity.

490 SEMINAR IN BIOLOGY 1Q Su 1 (2-0) Special problems in Biology. Offered at the Biological Station.

FOR GRADUATES

501 AREAS AND CONCEPTS OF ZOOLOGY 1Q A 2 Prereq graduate standing in Zoology or in Wildlife Technology. An orientation course for all new graduate students in zoology.

510 (210) POPULATION AND COMMUNITY ECOLOGY 1Q S 5 (2-8) Prereq 6 or more courses in Biol including Zool 308, 309 or 307 and 310, and 328 or 350, Bot 355, and Math 125 or =. The influence of physical and biotic factors on population structure, density, and productivity and on community organization. Theoretical as well as practical aspects are considered. Weekend field trips.

521 RADIATION-BIOLOGY 1Q Su 5 (6-15) Prereq Bachelor's degree; major preparation in Physics, Chem or Biol with at least one year of college work in each of the other two fields. Introductory nuclear physics and the influence of nuclear radiation on biological systems.

551 GENERAL ECOLOGY 1Q Su 5 (6-15) Prereq Bachelor's degree; major preparation in Bot, Biol or Zool. Community concepts including succession, stratification, periodicity and energy relationships; introduction to population problems.

561 (261) LIMNOLOGICAL METHODS 1Q Su 3 (3-12) Prereq 361, Chem 103 or 123. Practice in standard procedures employed. Field work.

600 (200) ADVANCED ZOOLOGICAL PROBLEMS 1Q a/q V 1-5 Students with sufficient preparation and ability pursue original investigations.

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

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