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## 1955-1957 Course Catalog

University of Montana--Missoula. Office of the Registrar

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# MONTANA

## STATE UNIVERSITY BULLETIN

NUMBER 462  
AUGUST, 1955

1955-57 CATALOG ISSUE  
AND  
Official Directory List

Montana State University  
MISSOULA

## 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
ARNOLD H. OLSEN, Attorney General	Ex-Officio
MARY M. CONDON, Supt. of Public Instruction	Ex-Officio Secretary
GEO. N. LUND, 1956 Reserve	MRS. GEO. CHAMBERS, 1960 Cut Bank
MRS. F. H. PETRO, 1957 Miles City	MERRITT N. WARDEN, 1961 Kalispell
HORACE J. DWYER, 1958 Anaconda	EMMET J. RILEY, 1962 Butte
CLARENCE L. POPHAM, 1959 Corvallis	A. B. GUTHRIE, 1963 Great Falls

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 Graduate School
The School of Business Administration	The Montana Cooperative Wildlife Research Unit
The School of Education	The University Press
The College of Fine Arts	
The Summer College	

Carl McFarland, President

#### MONTANA STATE COLLEGE, BOZEMAN

Established February 16, 1893, and consisting of

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

R. R. Renne, President

#### MONTANA SCHOOL OF MINES, BUTTE

Established February 17, 1893, and consisting of

The Course in Mining Engineering	The Course in Metallurgical Engineering
The Bureau of Mines and Geology	The Course in Geological Engineering
The Course in Petroleum Engineering	

J. Robert Van Pelt, 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	The Summer Quarter
The Teachers' Service Division	

Rush Jordan, President

#### EASTERN MONTANA COLLEGE OF EDUCATION, BILLINGS

Established March 12, 1925, and consisting of

The Four Year Course in Teacher Education—Elementary and Secondary	The Two-Year Basic Curricular Course
The Graduate Division	The Two-Year Course in Teacher Education—Elementary
The Summer Quarter	

A. G. Peterson, 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



MISSOULIAN

## PLEASE NOTE

The following changes should be made on the pages indicated :

- Page 49 Course number 162. RETAIL DRUG STORE MANAGEMENT. This course is to be placed in the MARKETING area on page 50, following course number 161.
- Page 49 Course 181ab. Change the word "PERSONAL" in the course title to "PERSONNEL."
- Page 51 Course number 105. OFFICE MANAGEMENT. This course is to be placed in the MANAGEMENT area at the bottom of page 48, preceding course number 129.



# MONTANA STATE UNIVERSITY

Missoula, Montana

## TABLE OF CONTENTS

Montana State University, support and endowment, campus and physical plant, control and administration .....	19
Biological Station .....	20
Wildlife Research Unit .....	20
Typographical Laboratory and Press .....	21
Public Service Division .....	21
Summer College .....	22
Accreditation .....	22
The Library .....	22
Financial Obligations .....	22
Requirements for Admission .....	25
Registration and General Regulations .....	26
Degrees Offered .....	28
Grading System .....	28
Requirements for Graduation .....	28
Student Services .....	32
Activities .....	36
Detail of Curricula and Courses of Instruction .....	39

### MONTANA STATE UNIVERSITY BULLETIN

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

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## MONTANA STATE UNIVERSITY CALENDAR 1955-57

1955

### AUTUMN QUARTER

September 18-24, Sunday through Saturday.....Orientation  
 Week and Registration  
 September 22-24, Thursday through Saturday.....Registration of former students  
 September 26, Monday.....Instruction Begins  
 November 24, Thursday.....Thanksgiving Day, a Holiday  
 December 12-16, Monday through Friday.....Examinations  
 December 16, Friday, 5:20 p.m.....Autumn Quarter Ends;  
 Christmas Recess Begins

1956

### WINTER QUARTER

January 3, Tuesday.....Instruction Begins; Registration  
 and Orientation of New Students  
 February 17, Friday.....Charter Day  
 March 12-16, Monday through Friday.....Examinations  
 March 16, Friday, 5:20 p.m.....Winter Quarter Ends; Spring Recess Begins

### SPRING QUARTER

March 26, Monday.....Instruction Begins; Registration  
 and Orientation of New Students  
 May 18-19, Friday, Saturday.....Interscholastic Meet  
 May 30, Wednesday.....Memorial Day, a Holiday  
 June 4, Monday.....Commencement  
 June 4-8, Monday through Friday.....Examinations  
 June 8, Friday, 5:20 p.m.....Spring Quarter Ends

### SUMMER SESSION

June 11, Monday (10 weeks and first term).....Registration  
 June 12, Tuesday.....Instruction Begins  
 July 4, Wednesday.....Independence Day, a Holiday  
 July 16, Monday.....Second Term Begins  
 August 17, Friday.....Session Ends

### AUTUMN QUARTER

September 23-29, Sunday through Saturday.....Orientation  
 Week and Registration  
 September 27-29, Thursday through Saturday.....Registration of former students  
 October 1, Monday.....Instruction Begins  
 November 22, Thursday.....Thanksgiving Day, a Holiday  
 December 17-21, Monday through Friday.....Examinations  
 December 21, Friday, 5:20 p.m.....Autumn Quarter Ends;  
 Christmas Recess Begins

1957

### WINTER QUARTER

January 7, Monday.....Instruction Begins; Registration  
 and Orientation of New Students  
 February 17, Sunday.....Charter Day  
 March 18-22, Monday through Friday.....Examinations  
 March 22, Friday, 5:20 p.m.....Winter Quarter Ends; Spring Recess Begins

### SPRING QUARTER

April 1, Monday.....Instruction Begins; Registration  
 and Orientation of New Students  
 May 17, 18, Friday, Saturday.....Interscholastic Meet  
 May 30, Thursday.....Memorial Day, a Holiday  
 June 10, Monday.....Commencement  
 June 10-14, Monday through Friday.....Examinations  
 June 14, Friday, 5:20 p.m.....Spring Quarter Ends

## LAW CALENDAR

### FALL SEMESTER 1955

Sept. 19-21, Monday through Wednesday.....Registration and Orientation  
 of new law students (including transfer law students from other schools)  
 Sept. 21, Wednesday.....Registration of former law students  
 Sept. 22, Thursday.....Classes begin at 8:00 a.m.  
 Nov. 24, Thursday.....Thanksgiving Day (no classes)  
 Dec. 17, Saturday.....Christmas vacation begins after the last class  
 Jan. 3, 1956, Tuesday.....Classes resume at 8:00 a.m.  
 Jan. 11-14, Wednesday through Friday.....Registration for  
 courses in the Spring Semester 1956  
 Jan. 23-27, Monday through Friday.....Semester examinations in all courses

### SPRING SEMESTER 1956

Jan. 30, Monday.....Classes begin at 8:00 a.m.  
 April 18-20, Wednesday through Friday.....Preregistration for  
 courses in the Fall Semester 1956  
 May 28-June 1, Monday through Friday.....Semester examinations in all courses  
 June 4.....Commencement

OFFICIAL DIRECTORY, 1954-55<sup>1</sup>

## EXECUTIVE BOARD

THEODORE JACOBS, Missoula

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

## ADMINISTRATIVE OFFICERS

CARL MCFARLAND, B.A., M.A., LL.B., S.J.D., LL.D., President

A. S. MERRILL, B.A., M.A., Ph.D., Vice President; Dean of  
the Faculty

E. KIRK BADGLEY, B.A., Controller

E. A. ATKINSON, B.A., M.A., Director of the Summer College

HERBERT J. WUNDERLICH, B.A., M.A., Ed.D., Dean of Students

MAURINE CLOW, B.A., M.A., Ph.D., Associate Dean of  
Students

LEO SMITH, B.S., M.A., Registrar

A. C. COGSWELL, B.A., M.A., Director, Division of Public  
Service

KATHLEEN CAMPBELL, B.S., M.S., Librarian

## THE FACULTY

ADAMS, HARRY F., Professor of Health and Physical Education; Head  
Track Coach.  
B.A., Montana State University, 1921; M.S., University of Washington,  
1952.ALLEN, EVERETT J., Assistant, Military Science and Tactics.  
Master Sergeant, U.S. Army.AMES, WALTER R., Professor of Education.  
Ph.B., University of Wisconsin, 1917; Ph.M., 1918; Ph.D., 1926.ANDRIE, EUGENE, Associate Professor of Music.  
B.S., Western Michigan College of Education, 1940; M.A., University of  
Washington, 1952.ARMSBY, LUCILLE JAMESON (Mrs.), Secretary to the President.  
(Assistant Professor).  
B.A., Montana State University, 1922.ARNOLD, ADEN F., Professor of Art.  
B.A., State University of Iowa, 1925; M.A., 1928.<sup>1</sup>The staff for 1955-56 is listed under each school or department.



- ARNOLD, HEINZ, Assistant Professor of Music.**  
B.A., College of the City of New York, 1934; B.Mus., Yale University, 1947; M.Mus., 1948; D.Mus., University of Dublin, 1950.
- ARNOLDSON, LOUISE G. (Mrs.), Professor Emeritus of French.**  
Diplome D'Etudes Francaises de Touraine (Alliance Francaise-Universite de Poitiers), 1914; B.A., University of Utah, 1919; Docteur de l'Universite de Paris (Lettres), 1934.
- ARTHUR, PATRICIA LA RUE, Dietitian, Residence Halls.**  
B.S., Oklahoma A. and M. College, 1953.
- ATKINSON, E. A., Director of the Summer College; Chairman, Department of Psychology and Philosophy; Professor of Psychology.**  
B.A., University of Denver, 1920; M.A., Montana State University, 1922.
- BADGLEY, E. KIRK, Controller (Professor).**  
B.A., Montana State University, 1924.
- BALDWIN, DON, Nurseryman and Forest Supervisor.**  
B.S.F., University of Minnesota, 1935.
- BARKMAN, AUDREY (Mrs.), Psychometrician, Counseling and Testing.**  
B.A., University of Kentucky, 1943. (Appointed March 15, 1955.)
- BATEMAN, WILLIAM G., Professor Emeritus of Chemistry.**  
B.A., Stanford University, 1907; M.A., 1909; Ph.D., Yale University, 1916.
- BEATTY, BENJAMIN W., Field Assistant, Forest and Conservation Experiment Station.**  
B.S., Montana State University, 1951. (Resigned July 31, 1954).
- BENNETT, EDWARD E., Professor of History and Political Science.**  
B.A., University of Kansas, 1916; M.A., University of Wisconsin, 1923; Ph.D., 1925.
- BERRY, RUTH M. (Mrs.), Head Resident, South Hall.**
- BISCHOFF, PAUL A., Professor of Spanish.**  
B.S., Montana State University, 1927; B.A., 1928; M.A. Oberlin College, 1932.
- BLAKE, GRACE E. (Mrs.), Head Resident Emeritus, South Hall.**
- BLANKENHORN, S. GRACE (Mrs.), Assistant Head Resident, Corbin Hall.**
- BONER, AGNES V., Instructor in English.**  
B.S., University of Minnesota, 1935; M.A., 1948; Ph.D., 1955.
- BONNIN, GUNTHER M., Assistant Professor of Foreign Languages.**  
B.A., Reed College, 1943; M.A., Stanford University, 1948; Ph.D., 1949.
- BOONE, WILLIAM T., Instructor in Business Administration.**  
LL.B., Montana State University, 1933.
- BREEN, ROBERT, Director of Family Housing; Manager, Field House.**  
B.A., Montana State University, 1936.
- BRIGGS, EDWIN W., Professor of Law.**  
B.S., Oklahoma A. & M. College, 1927; LL.B., University of Oklahoma, 1932; LL.M., Harvard University, 1935.
- BRISSEY, F. LEE, Instructor in Psychology and Philosophy.**  
B.A., Montana State University, 1949; M.A., State University of Iowa, 1952; Ph.D., 1955.
- BROWDER, W. GORDON, Chairman, Department of Sociology and Anthropology; Professor of Sociology.**  
B.A., University of Virginia, 1936; M.A., University of North Carolina, 1941; Ph.D., 1943.
- BROWMAN, LUDVIG G., Chairman, Department of Zoology; Professor of Zoology.**  
B.S., University of Chicago, 1928; Ph.D., 1935.
- BROWN, DOROTHY (Mrs.), Assistant in English.**  
B.A., University of Idaho, 1939.
- BROWN, WALTER L., Associate Professor of English.**  
B.A., University of Idaho, 1938; M.A., 1939; Ph.D., University of California, 1952.
- BRUNS, PAUL E., Associate Professor of Forestry.**  
B.A., New York University, 1937; M.F., Yale University, 1940.

- BRUNSON, ROYAL B., Associate Professor of Zoology.  
B.S., Western Michigan College of Education, 1938; M.S., University of Michigan, 1945; Ph.D., 1947.
- BRYAN, GORDON H., Assistant Professor of Pharmacology.  
B.S., Montana State University, 1940; M.S., 1947.
- BUE, OLAF J., Acting Dean, School of Journalism; Professor of Journalism.  
B.A., Montana State University, 1923; M.S.J., Northwestern University, 1941.
- BUKER, SAMUEL L., Lecturer in Psychology and Philosophy.  
B.A., Montana State University, 1947; M.A., Northwestern University, 1950; Ph.D., 1952.
- BULL, CECIL, Cataloger (Assistant Professor).  
B.A., Brown University, 1935; B.A.L.S., University of Michigan, 1947. (Resigned September 13, 1954.)
- BURGESS, ROBERT M., Chairman, Department of Foreign Languages; Associate Professor of Foreign Languages.  
B.A., Bridgewater College, 1928; M.A., University of Virginia, 1936; Ph.D., University of California, 1951.
- BUSH, BARBARA Jo (Mrs.), Dietitian, Residence Halls.  
B.A., Montana State University, 1952.
- BYRNE, ROBERT LEE, Instructor in Health and Physical Education; Baseball Coach; Freshman Basketball Coach.  
B.A., Montana State University, 1952.
- CALL, TRACEY G., Associate Professor of Pharmacognosy.  
B.S., University of Idaho, Southern Branch, 1940; M.S., University of Maryland, 1944; B.A., Brigham Young University, 1947.
- CAMPBELL, KATHLEEN R., Librarian (Professor).  
B.S., University of Denver, 1934; M.S., 1939.
- CARLETON, LINUS J., Dean, School of Education; Professor of Education.  
B.A., Intermountain Union College, 1925; M.Ed., Montana State University, 1940.
- CARPENTER, NAN C., Associate Professor of English.  
B.Mus., Hollins College, 1934; M.A., University of North Carolina, 1941; M.A., Yale University, 1945; Ph.D., 1948. (On leave of absence, 1954-55.)
- CARROLL, JAMES W., Instructor in Sociology and Anthropology.  
B.A., University of Kansas City, 1946; M.A., University of Florida, 1947.
- CASTLE, GORDON B., Dean of the Graduate School; Director of the Biological Station; Professor of Zoology.  
B.A., Wabash College, 1928; M.A., University of California, 1930; Ph.D., 1934.
- CHADWICK, BERN, Assistant in Military Science and Tactics.  
Sergeant First Class, U. S. Army.
- CHATLAND, HAROLD, Dean, College of Arts and Sciences; Professor of Mathematics.  
B.A., McMaster University, 1934; M.S., University of Chicago, 1935; Ph.D., 1937.
- CHESSIN, MEYER, Assistant Professor of Botany.  
B.S., University of California, 1941; Ph.D., 1950.
- CHINSKE, EDWARD S., Assistant Professor of Health and Physical Education; (Head Football Coach, Autumn, 1954 and Winter, 1955.)  
B.A., Montana State University, 1930.
- CHUMRAU, PAUL J., Director of Placement Bureau; Business Manager of Athletics.  
B.A., Montana State University, 1939. (Resigned April 16, 1955.)
- CLAPP, MARY B. (Mrs.), Associate Professor Emeritus of English.  
B.A., University of North Dakota, 1903; M.A., 1906.
- CLARK, FAY G., Professor of Forestry.  
B.A., University of Michigan, 1912; M.S.F., 1914.
- CLARK, WESLEY P., Professor Emeritus of Classical Languages; Dean Emeritus of Graduate School.  
B.A., University of Richmond, 1903; M.A., 1904; Ph.D., University of Chicago, 1928.

- CLARK, WALTER VAN TILBURG, Associate Professor of English.  
B.A., University of Nevada, 1931; M.A., 1932; M.A., University of Vermont, 1934.
- CLARKE, S. KENDRICK, Assistant Director, Residence Halls.  
B.A., Montana State University, 1926.
- CLOW, MAURINE, Associate Dean of Students; Professor of Psychology and Philosophy.  
B.A., Stanford University, 1934; M.A., 1936; Ph.D., 1946. (On leave of absence.)
- CLUBB, MERREL D., JR., Assistant Professor of English.  
B.A., Oklahoma A. & M. College, 1943; M.A., Yale University, 1949; Ph.D., University of Michigan, 1953.
- COGSWELL, ANDREW C., Director, Division of Public Service; Professor of Journalism.  
B.A., Montana State University, 1927; M.A., University of Minnesota, 1943.
- COLEMAN, RUFUS A., Professor of English.  
B.A., Whitman College, 1909; M.A., Columbia University, 1914; Ph.D., Boston University, 1938.
- COLVILL, FRANCES L. (Mrs.), Instructor in Business Administration.  
B.A., Montana State University, 1929.
- COLVIN, MILTON, Assistant Professor of Sociology and Anthropology.  
B.A., Yale University, 1948; Ph.D., University of Heidelberg, 1953.
- COONEY, ROBERT F., Research Associate, Forest and Conservation Experiment Station.  
B.S.F., Montana State University, 1932.
- COOPER, GRACE (Mrs.), Visiting Professor of Art.  
(On Staff Autumn, 1954, and Spring, 1955.)
- COOPER, MARJORIE (Mrs.), Instructor in Ballet.
- COWELL, WAYNE R., Assistant Professor of Mathematics.  
B.S., Kansas State College, 1948; M.S., 1950; Ph.D., University of Wisconsin, 1954.
- COX, GENE S., Assistant Professor of Forestry.  
B.S., Duke University, 1947; M.F., 1948; Ph.D., 1953.
- CRAIGHEAD, JOHN J., Assistant Professor of Zoology; Leader of the Montana Cooperative Wildlife Research Unit.  
B.A., Pennsylvania State College, 1939; M.S., University of Michigan, 1940; Ph.D., 1950.
- CROSS, GEORGE W., Instructor in Health and Physical Education.  
B.S., Indiana University, 1951.
- DAHLBERG, GEORGE P., Director of Athletics; Professor of Health and Physical Education; Basketball Coach.  
B.A., Montana State University, 1925.
- DAWES, ARTIE, Head Teacher, Nursery School (Instructor).  
B.A., Montana State University, 1929.
- DELAND, MARY F. (Mrs.), Assistant Cataloger (Instructor).  
B.A., University of Wyoming, 1932; B.S.L.S., University of Washington, 1933.
- DEMARIS, E. JOE, Assistant Professor of Business Administration.  
B.A., Whitman College, 1942; C.P.A., Washington, 1946; M.A., Montana State University, 1949.
- DEW, JAMES E., Assistant Professor of Art.  
B.A., Oberlin College, 1946; M.A., 1947.
- DEW, JANE (Mrs.), Assistant Professor of Health and Physical Education.  
B.Ed., University of California at Los Angeles, 1935; M.A., University of Oregon, 1937.
- DIETERT, REUBEN A., Professor of Botany.  
B.A., DePauw University, 1925; M.S., Michigan State College, 1927; Ph.D., State University of Iowa, 1937.
- DRUMMOND, DON M., Assistant Professor of Forestry.  
B.S.F., Utah State Agricultural College, 1937; M.S.F., Louisiana State University, 1939. (Resigned April 30, 1955.)

- DUGAN, EDWARD B., Professor of Journalism.  
B.J., University of Missouri, 1932; M.A., 1940.
- DUMAS, FRANK M., Assistant Professor of Psychology and Philosophy.  
B.S., University of Virginia, 1940; M.A., 1941; Ph.D., University of Texas, 1952.
- DWYER, EDWIN O., Assistant Professor of Business Administration.  
B.A., North Dakota State Teachers College, 1939; M.B.A., University of California at Los Angeles, 1947; C.P.A., Montana, 1952.
- EKLUND, CARL M., Lecturer in Virology.  
B.A., University of Minnesota, 1925; M.D., 1932.
- ELY, ROY J. W., Chairman, Department of Economics; Professor of Economics.  
B.S. in B.A., University of Nebraska, 1924; M.A., 1925; Ph.D., 1937.
- EMBLEM, DONALD J., Professor of Business Administration.  
B.A., Ohio University, 1932; M.B.A., University of Pennsylvania, 1935; Ph.D., Columbia University, 1944; C.P.A., Montana, 1950.
- EPHRON, MARGUERITE H. (Mrs.), Assistant Professor of Latin and Humanities.  
B.A., Montana State University, 1931; M.A., 1932.
- EVENDEN, JAMES, Special Lecturer in Forestry.  
B.S.F., Oregon State Agricultural College, 1913; F. Eng., 1914; (On Staff Spring, 1955.)
- FAUROT, BETTY (Mrs.), Instructor in Health and Physical Education.  
B.A., Montana State University, 1945; M.A., Columbia University, 1946.
- FAUROT, JAMES L., Instructor in Forestry.  
B.S., Montana State University, 1949.
- FERGUSON, MARY ELROD (Mrs.), Assistant Director, Museum and Northwest Historical Collection (Assistant Professor).  
B.S., Montana State University, 1911; M.A., Columbia University, 1934.
- FERRISS, VICTOR C., Assistant Professor of History and Political Science.  
B.A., University of California, 1948; M.A., 1949; M.A., Yale University, 1950; Ph.D., University of Chicago, 1954.
- FERM, DEANE W., Director, Affiliated School of Religion (Assistant Professor).  
B.A., College of Wooster, 1949; B.D., Yale University Divinity School, 1952; M.A., Yale University, 1953; Ph.D., 1954.
- FESSENDEN, SETH, Associate Professor of English (in Speech).  
B.S., University of Illinois, 1933; M.S., 1934; Ph.D., New York University, 1941.
- FIEDLER, LESLIE A., Chairman, Department of English; Professor of English.  
B.A., New York University, 1938; M.A., University of Wisconsin, 1939; Ph.D., 1941.
- FISCHER, ROBERT E., Acquisitions Librarian (Instructor).  
B.A., University of Minnesota, 1952; M.S. in L.S., Western Reserve University, 1953.
- FOLSOM, GWENDOLYN, Research Assistant and Secretary, President's Office.  
B.A., George Washington University, 1933; M.A., Catholic University, 1935.
- FORD, JAMES L. C., Professor of Journalism.  
B.A., Lawrence College, 1928; M.A., University of Wisconsin, 1939; Ph.D., University of Minnesota, 1948.
- FRANKINO, JOHN, Assistant in Mathematics.  
B.A., Montana State University, 1955. (On staff Spring, 1955.)
- FREEMAN, EDMUND L., Professor of English.  
B.A., Missouri Wesleyan College, 1915; M.A., Northwestern University, 1924.
- FROST, BENJAMIN R., Assistant Professor of Education.  
B.S., University of North Dakota, 1933; M.A., University of Minnesota, 1940. (Resigned February 11, 1955.)
- FROST, EDWIN C., Associate Professor of Air Science and Tactics.  
Major, U.S. Air Force; B.A., Montana State University, 1955.

- GARLINGTON, J. C., Assistant Professor of Law.  
B.A., Montana State University, 1930; LL.B., 1930.
- GARLINGTON, WARREN K., Assistant Professor of Psychology and Philosophy.  
B.A., Montana State University, 1948; Ph.D., Indiana University, 1953.
- GARN, PHIL R., Assistant Professor of Military Science and Tactics.  
Captain, U.S. Army.
- GEDICKIAN, HASMIG G., Assistant Professor of Music.  
B.Mus., Shenandoah Conservatory of Music, 1943; M.Mus., Northwestern University, 1946. (Resigned, August 31, 1954.)
- GILBERT, GERTRUDE (Mrs.), Assistant in English.  
B.A., University of Minnesota, 1930; B.S., 1932; M.A., Columbia University, 1934.
- GILBERT, VEDDER M., Assistant Professor of English.  
B.A., Union College, 1936; M.A., Cornell University, 1938; Ph.D., 1952.
- GLEASON, HELEN, Chairman, Department of Home Economics; Professor of Home Economics.  
B.S., Teachers College, Columbia University, 1922; M.A., Columbia University, 1927.
- GORDON, INA C. (Mrs.), Head Resident Emeritus, Corbin Hall.
- GRAY, J. JUSTIN, Assistant Professor of Music.  
B.Mus., University of Michigan, 1942; M.Mus., Eastman School of Music, 1946. (On leave of absence, 1954-55.)
- GUYOR, EDITH L., Circulation Librarian (Instructor).  
B.S., University of Minnesota, 1929; M.A., 1936; B.S.L.S., 1949.
- HAMMEN, OSCAR J., Professor of History and Political Science.  
B.A., Northwestern College, 1929; B.A., University of Wisconsin, 1930; Ph.D., 1941.
- HANSEN, BERT B., Professor of English.  
B.A., University of South Dakota, 1922; M.A., University of Washington, 1929.
- HANSEN, MARGARET S. (Mrs.), Assistant in English.  
B.A., Swarthmore College, 1951; M.A., Montana State University, 1954. (On staff Winter and Spring, 1955.)
- HARVEY, LEROY H., Assistant Professor of Botany.  
B.S., Western Michigan College of Education, 1936; M.S., University of Michigan, 1946; Ph.D., 1948.
- HASHISAKI, JOSEPH, Assistant Professor of Mathematics.  
B.A., Montana State University, 1940; M.A., University of Illinois, 1951; Ph.D., 1953.
- HAYS, SAMUEL H., Professor of Military Science and Tactics.  
Lieutenant Colonel, U.S. Army, B.S., U.S. Military Academy, 1942; M.A., Columbia University, 1950.
- HELBING, ALBERT T., Professor of Business Administration.  
Ph.B., Denison University, 1923; Ph.D., The Johns Hopkins University, 1929.
- HENDERSON, HUBERT P., Instructor in Music.  
B.A., University of North Carolina, 1941; M.A., 1950.
- HENNINGSSEN, FRED A., Acting Assistant Professor of Business Administration.  
B.A., Montana State University, 1946; M.A., 1948; C.P.A., Montana, 1948.
- HERINGMAN, BERNARD, Instructor in English.  
B.A., The Johns Hopkins University, 1944; M.A., Columbia University, 1948.
- HERTLER, CHARLES F., Chairman, Department of Health and Physical Education; Associate Professor of Health and Physical Education.  
B.P.E., Indianapolis Normal College, 1932; M.A., Teachers College, Columbia University, 1936; B.S. in Education, Indiana University, 1942.
- HETLER, DONALD M., Chairman, Department of Bacteriology and Hygiene; Professor of Bacteriology.  
B.A., University of Kansas, 1918; M.A., 1923; Ph.D., Yale University, 1926.
- HIGMAN, DONALD G., Associate Professor of Mathematics.  
B.A., University of British Columbia, 1949; M.A., University of Illinois, 1951; Ph.D., 1952.

- HINZE, LeROY W., Assistant Professor of Drama.  
B.A., University of Wisconsin, 1944; M.A., Cornell University, 1947.
- HODGMAN, PATRICIA, Assistant in Music.  
Juilliard School of Music, Diploma in Harp.
- HOFFMAN, RUDOLPH O., Professor Emeritus of French.  
Ph.C., State University, Ghent, Belgium, 1910; M.A., University of Wisconsin, 1921; Diplome Superieur d'Etudes de Civilisation Francaise (Universite de Paris), 1929.
- HOFLICH, HAROLD J., Director, Bureau of Business and Economic Research; Professor of Business Administration.  
B.A., University of Oregon, 1925; Ph.D., University of California, 1933.
- HOLBROOK, GENEVIEVE (Mrs.), Visiting Lecturer in Music.  
B.Mus.Ed., University of Kansas, 1933; B.Mus., 1934; M.Mus.Ed., 1937.
- HOLLANDSWORTH, HELEN L., Assistant Professor of Home Economics.  
B.S., Montana State College, 1937; M.S., Oregon State College, 1949.
- HONKALA, FRED S., Assistant Professor of Geology.  
B.S., University of New Hampshire, 1940; M.A., University of Missouri, 1942; Ph.D., University of Michigan, 1949.
- HOOVER, KENNETH H., Instructor in Education.  
B.S., Louisiana State University, 1948; M.A., 1951; Ed.D., University of Washington, 1955. (Appointed February 14, 1955.)
- HOWARD, JOSEPH W., Chairman, Department of Chemistry; Professor of Chemistry.  
B.A., Shurtleff College, 1912; M.A., University of Illinois, 1913; Ph. D., 1915.
- HOYER, BILL H., Lecturer in Bacteriology.  
B.S., University of Washington, 1943; M.S., 1945; Ph.D., University of Minnesota, 1948.
- HUEY, BEN M., Assistant Professor of Forestry.  
B.A., University of Kansas, 1938; B.S., Colorado A. and M. College, 1942; M.S., Montana State University, 1951. (On staff Winter, 1955.)
- HUMMEL, J. GEORGE, Assistant Professor of Music.  
B.S., Juilliard School of Music, 1949; M.A., Columbia University, 1950.
- JAKOBSON, MARK J., Assistant Professor of Physics.  
B.A., Montana State University, 1944; M.A., 1947; Ph.D., University of California, 1951.
- JAMES, ROBERT L., Assistant Professor of Sociology and Anthropology.  
B.A., Wayne University, 1948; M.A., 1950; Ph.D., University of Oregon, 1955.
- JEFFERS, EDMUND E., Assistant Professor of Bacteriology and Hygiene.  
B.A., Luther College, 1934; M.S.P.H., University of Michigan, 1940.
- JEPPESSEN, C. RULON, Chairman, Department of Physics; Professor of Physics.  
BA., Brigham Young University, 1928; M.A., University of California, 1930; Ph.D., 1932.
- JESSE, RICHARD H., Vice President Emeritus; Professor Emeritus of Chemistry.  
B.A., University of Missouri, 1902; M.A., Harvard University, 1907; Ph.D., 1909.
- JOHNSON, GAYNELL, Dietitian, Residence Halls.  
B.S., Utah State Agricultural College, 1953.
- JOHNSON, DOROTHY M., Assistant Professor of Journalism.  
B.A., Montana State University, 1928.
- JONES, ARTHUR D., Assistant in Air Science and Tactics.  
Staff Sergeant, U. S. Air Force.
- JUDAY, RICHARD E., Associate Professor of Chemistry.  
B.A., Harvard University, 1939; Ph.D., University of Wisconsin, 1943.
- KARLIN, JULES A., Assistant Professor of History and Political Science.  
B.S., Georgetown University, 1936; M.A., University of North Carolina, 1937; Ph.D., University of Minnesota, 1940.
- KLEMMEDSON, JAMES O., Instructor in Forestry.  
B.S.F., University of California, 1950; M.S., Colorado A. & M. College, 1953.

- KNAPP, HENRY W.**, Assistant Professor of Education.  
B.A., State Teachers College (Valley City, North Dakota), 1939; M.Ed., Montana State University, 1947.
- KNUDSEN, SVERRE J.**, Visiting Instructor in Education.  
B.A., Montana State University, 1938; M.Ed., 1949. (On staff Winter and Spring, 1955).
- KOEHLER, GEORGE H.**, Associate Professor of Air Science and Tactics.  
Major, U. S. Air Force; B.A., Willamette University, 1933; M.Ed., Montana State University, 1955.
- KOTSCHIEVAR, LENDAL H.**, Director of Food Services and Residence Halls (Professor).  
B.A., University of Washington, 1932; B.S., 1945; M.A., 1947; Ph.D., Columbia University, 1954.
- KRAMER, JOSEPH**, Professor of Botany.  
B.S., University of Nebraska, 1921; M.A., 1923; Ph.D., 1936.
- KRIER, JOHN P.**, Assistant Professor of Forestry.  
B.S., University of Idaho, 1947; M.S., 1948; Ph.D., Yale University, 1951.
- KROEKER, HERBERT R.**, Assistant Professor of Economics.  
B.A., Bethel College, 1938; M.A., University of Kansas, 1942; Ph.D., University of Nebraska, 1952.
- LACKMAN, DAVID B.**, Lecturer in Immunology.  
B.S., University of Connecticut, 1933; Ph.D., University of Pennsylvania, 1937.
- LAROM, HENRY V.**, Instructor in English.  
B.A., Montana State University, 1932; M.A., 1951.
- LEAPHART, CHARLES W.**, Dean Emeritus, School of Law; Professor Emeritus of Law.  
B.A., University of Missouri, 1905; M.A., 1906; LL.B., Harvard University, 1913; S.J.D., 1929.
- LEONARD, RICHARD G.**, Assistant in Air Science and Tactics.  
Master Sergeant, U. S. Air Force.
- LESTER, JOHN**, Professor of Music.  
B.A., B.Mus., Southwestern University (Texas), 1922; Studied in Nice, France, 1923-6; Milan, Italy, 1927-30.
- LINE, ROBERT C.**, Professor of Business Administration.  
B.A., Montana State University, 1910; M.A., Harvard University, 1912.
- LOMMASSON, EMMA B. (Mrs.)**, Assistant Registrar (Instructor).  
B.A., Montana State University, 1933; M.A., 1939.
- LORENZ, MAVIS**, Instructor in Health and Physical Education.  
B.S., Wisconsin State College, 1948; M.S., University of Washington, 1954.
- LORY, EARL C.**, Professor of Chemistry.  
B.S., Colorado A. & M. College, 1928; Ph.D., Johns Hopkins University, 1932.
- LORY, NAOMI (Mrs.)**, Instructor in Home Economics.  
B.S., Colorado A. & M. College, 1931.
- MACARTHUR, ELEANOR**, Assistant Director of Food Services (Assistant Professor).  
B.A., Montana State University, 1930.
- MCCAULEY, CLARENCE V.**, Professor of Air Science and Tactics.  
Lieutenant Colonel, U. S. Air Force; B.A., University of California at Los Angeles, 1936.
- McFARLAND, CARL**, President; Dean, School of Law (to May 1, 1955); Professor of Law.  
B.A., Montana State University, 1928; M.A., 1929; LL.B., 1930; LL.D., 1949 (Honorary); S.J.D., Harvard University, 1932.
- MCGINNIS, RALPH Y.**, Associate Chairman of Department of English and Speech; Associate Professor of English (in Speech).  
B.A., Kent State University, 1932; M.A., Northwestern University, 1938. (On leave of absence Winter, 1955.)

- MCLAUGHLIN, KENNETH P.**, Chairman, Department of Geology; Professor of Geology.  
B.A., University of Missouri, 1939; M.A., 1941; Ph.D. Louisiana State University, 1947.
- MCLAURY, HELEN C.**, Assistant Professor of Law and Law Librarian.  
B.A., Western Michigan College, 1929; B.S. in L.S., Columbia University, 1933; J.D., Northwestern University, 1953.
- McMULLEN, DONALD**, Assistant in Speech.  
B.A., Montana State University, 1951; B.S., LL.B., 1952.  
(Resigned December 31, 1954.)
- MADDOCK, WILLIAM E.**, Professor Emeritus of Education.  
B.L., Earlham College, 1894; B.A., Harvard University, 1904; M.A., Stanford University, 1922.
- MALOUF, CARLING I.**, Assistant Professor of Anthropology.  
B.S., University of Utah, 1939; M.S., 1940.
- MARTELL, EARL W.**, Editor of Publications (Instructor).  
B.A., Montana State University, 1939.
- MARTINSON, ALVHILD**, Instructor in Business Administration.  
B.A., State Teachers College (Minot, North Dakota), 1936; M.Ed., Montana State University, 1950.
- MARVIN, EDWIN L.**, Professor of Psychology and Philosophy.  
B.A., Central College (Missouri), 1921; M.A., Harvard University, 1923.
- MASON, DAVID R.**, Professor of Law.  
LL.B., University of South Dakota, 1924; B.A., 1926; S.J.D., Harvard University, 1927.
- MATTHEWS, DONALD G.**, Assistant Professor of Military Science and Tactics.  
Captain, U. S. Army, B.S., East Stroudsburg State Teachers College, 1950. (Appointed January 20, 1955.)
- MAY, CHARLES A.**, Assistant in Air Science and Tactics.  
Master Sergeant, U. S. Air Force.
- MERRIAM, HAROLD G.**, Professor Emeritus of English.  
B.A., University of Wyoming, 1905; B.A., Oxford University, England, 1907; M.A., 1912; Ph.D., Columbia University, 1939.
- MERRILL, A. S.**, Vice President; Dean of the Faculty; Professor of Mathematics.  
B.A., Colgate University, 1911; M.A., 1914; Ph.D., University of Chicago, 1916.
- MILBURN, FRANK W.**, R.O.T.C. Coordinator.  
Lt. General, Infantry, U. S. Army, Retired; B.A., United States Military Academy, 1914.
- MILLER, FRANK S.**, Assistant in Air Science and Tactics.  
Staff Sergeant, U. S. Air Force.
- MILLER, HARRIET E.**, Acting Associate Dean of Students.  
B.A., Whitman College, 1941; M.A., University of Pennsylvania, 1949.
- MILLER, J EARLL**, Chairman, Department of History and Political Science; Professor of History and Political Science.  
B.A., University of Kansas, 1910; LL.B., 1912; M.A., University of Illinois, 1914; Ph.D., 1917.
- MIRRELEES, LUCIA B.**, Professor Emeritus of English.  
B.A., Stanford University, 1909; Ph.D., 1924.
- MOLLETT, CHARLES E. F.**, Professor Emeritus of Pharmacognosy.  
Ph.C., University of Kansas, 1904; B.A., Montana State University, 1920; M.S., University of Kansas, 1927.
- MONTGOMERY, RUBY (Mrs.)**, Lecturer in Foreign Languages.  
B.A., Montana State University, 1915; M.A., 1935. (On Staff Winter, 1955.)
- MOORE, JOHN E.**, Associate Professor of English.  
B.A., University of Michigan, 1936; M.A., 1937.
- MORRIS, MELVIN S.**, Professor of Forestry.  
B.S., Colorado A. & M. College, 1930; M.S., 1932



- MUNRO, JAMES, Visiting Instructor in Education.**  
B.S., Iowa State College, 1947; M.S., Cornell University, 1948; Ed.D., University of Washington, 1954. (On Staff Autumn, 1954 and Winter, 1955.)
- MURPHEY, GLADYS F. (Mrs.), Assistant Head Resident, New Hall.**  
B.A., Montana State University, 1913.
- MURPHY, CALVIN L., Assistant Controller.**  
B.A., Montana State University, 1949.
- MYERS, VERA T. (Mrs.), Assistant in Mathematics.**  
B.A., Bryn Mawr College, 1948; M.A., Ohio State University, 1950.
- MYERS, WILLIAM M., JR., Assistant Professor of Mathematics.**  
B.A., Denison University, 1946; M.A., Ohio State University, 1948; Ph.D., 1952.
- NAUMETZ, FREDERICK, Instructor in Health and Physical Education; Assistant Football Coach.**  
B.S., Boston College, 1943. (Appointed April 11, 1955.)
- NELSON, GERHART H., Research Fellow in Forestry.**  
B.S., Montana State University, 1951; M.S.F., 1955.
- NELSON, RITA M. (Mrs.), Assistant Acquisitions Librarian (Instructor).**  
B.A., Montana State University, 1934.
- NOTHNAGLE, GAIL C. (Mrs.), Assistant in Foreign Languages.**  
B.A., Lawrence College, 1949; M.A. University of Wisconsin, 1953. (On Staff Autumn, 1954 and Winter, 1955.)
- NOTHNAGLE, JOHN T., JR., Instructor in Foreign Languages.**  
B.A., University of Rochester, 1949; M.A., University of Wisconsin, 1952.
- OAKLAND, LLOYD C., Professor of Music.**  
B.S. in Mus., Cornell College, 1930; M.Mus., Northwestern University, 1936.
- ORMSBEE, RICHARD A., Lecturer in Biochemistry.**  
B.A., Montana State University, 1936; M.S., Washington State College, 1938; Ph.D., Brown University, 1941.
- ORR, JACK E., Dean, School of Pharmacy; Professor of Pharmacy.**  
B.S., Purdue University, 1940; Ph.D., University of Wisconsin, 1943.
- OSBORNE, CHARLES, Instructor in Music.**  
B.Mus., Michigan State College, 1951; M.Mus., 1953.
- OSTERHELD, ROBERT K., Assistant Professor of Chemistry.**  
B.S., Polytechnic Institute of Brooklyn, 1945; Ph.D., University of Illinois, 1950.
- OSTROM, T. G., Chairman, Department of Mathematics; Associate Professor of Mathematics.**  
B.A., University of Minnesota, 1937; B.S., 1939; M.A., 1939; Ph.D., 1947.
- OSWALD, ROBERT M., Instructor in Health and Physical Education.**  
B.A., Montana State University, 1947.
- PAGE, LEON B., Assistant in Military Science and Tactics; Military Property Custodian.**  
Master Sergeant, U. S. Army.
- PAYNE, THOMAS, Assistant Professor of History and Political Science.**  
B.A., Westminster College (Missouri), 1941; M.A., University of Chicago, 1948; Ph.D., 1951.
- PENGELLY, W. LESLIE, Head, Conservation Education Extension (Assistant Professor).**  
B.A., Northern Michigan College of Education, 1939; M.S., University of Michigan, 1948.
- PETERSON, DWIGHT W., Assistant Professor of Air Science and Tactics.**  
Captain, U. S. Air Force. B.A., University of Nevada, 1951.
- PETERSON, LEONA J. (Mrs.), Acting Director, Placement Bureau.**  
(Appointed February 1, 1955.)
- PHILLIPS, PAUL C., Professor Emeritus of History and Political Science.**  
B.A., Indiana University, 1906; M.A., 1909; Ph.D., University of Illinois, 1911.
- PISHKIN, VLADIMIR, Assistant in Psychology and Philosophy.**  
B.A., Montana State University, 1951; M.A., 1955. (On Staff, Winter and Spring, 1955.)

- PLATT, ANNE C.**, Professor of Home Economics.  
B.S., University of Washington, 1917; M.S., 1928.
- POTTE, ERNEST H.**, Assistant, Public Service Division; Director, Student Activities-Facilities; (Assistant Professor), effective April 11, 1955.  
B.A., Bowdoin College, 1941. (Appointed February 1, 1955.)
- POWELL, LOUIS W.**, Instructor in Forestry.  
B.S.F., Oregon State College, 1950; M.F., Duke University, 1951.
- RAMSKILL, BERNICE B. (Mrs.)**, Associate Professor of Music.
- RAY, CHARLES G.**, Associate Professor of Military Science and Tactics.  
Major, U. S. Army.
- REYNOLDS, FLORENCE**, Instructor in Music.  
B.Mus., Eastman School of Music, 1946; M.Mus., 1947.
- RICHMAN, LUTHER A.**, Dean, College of Fine Arts; Professor of Music.  
B.S., Northwest Missouri State Teachers College, 1925; B.Mus., Cincinnati Conservatory of Music, 1928; M.Mus., 1930; D.Mus., (Honorary), 1937; M.A., University of Cincinnati, 1930; D.Ed., 1938.
- RICKETT, RAYMOND J.**, Assistant in Military Science and Tactics.  
Master Sergeant, U. S. Army
- RIMEL, VERA S. (Mrs.)**, Head Resident, New Hall.
- ROBINSON, R. H.**, Instructor in Business Administration.  
B.A., Montana State University, 1940; LL.B., 1948.
- ROWE, JULIA M.**, Head Resident, North Hall.  
B.A., Grinnell College, 1933.
- RUSSEL, CHARLOTTE**, Law Librarian and Secretary Emeritus.
- RYDELL, O. F.**, Assistant Professor of Business Administration.  
B.S., University of Notre Dame, 1938; C.P.A., Montana, 1948; M.A., Montana State University, 1950.
- SALVIN, SAMUEL B.**, Lecturer in Mycology.  
B.A., Harvard University, 1935; M.Ed., 1937; M.A., 1938; Ph.D., 1941.
- SAPPENFIELD, BERT R.**, Professor of Psychology and Philosophy.  
B.A., DePauw University, 1935; M.A., New York University, 1938; Ph.D., 1941. (On leave of absence, 1954-55.)
- SAWHILL, ROBERT H.**, Assistant in Physics (Winter Quarter); Graduate Assistant in Physics (Autumn and Spring Quarters).  
B.A., Montana State University, 1950.
- SCHLEBECKER, JOHN T.**, Assistant Professor of History and Political Science.  
B.A., Hiram College, 1949; M.A., Harvard University, 1951; Ph.D., University of Wisconsin, 1954.
- SCHREIBER, WILLIAM E.**, Professor Emeritus of Physical Education.  
B.A., University of Wisconsin, 1904.
- SCOTT, JOHN R.**, Director, Health Service (Assistant Professor).  
B.A., Bethel College, 1943; M.D., Kansas University Medical Center, 1946. (Resigned April 18, 1955.)
- SEEDORF, EVELYN H.**, Assistant Professor of English (in Speech).  
B.A., Maryville College; M.A., University of Wisconsin, 1938; Ph.D., 1947.
- SEVERSEN, KERMIT E.**, Counselor; Assistant Professor of Psychology and Philosophy.  
B.Ed., Milwaukee State Teachers College, 1932; Ph.M., University of Wisconsin, 1939; Ph.D., 1954. (Resigned March 15, 1955.)
- SEVERY, J. W.**, Chairman, Department of Botany; Professor of Botany.  
B.A., Oberlin College, 1915; M.S., Washington University, 1926; Ph.D., University of Wisconsin, 1931.
- SHALLENBERGER, G. D.**, Professor of Physics.  
B.S., Oklahoma A. & M. College, 1912; B.S., Tulane University of Louisiana, 1917; M.S., 1919; Ph.D., University of Chicago, 1923.
- SHOEMAKER, THEODORE H.**, Associate Professor of Spanish.  
B.A., Montana State University, 1936; M.A., University of California, 1938; Ph.D., University of Wisconsin, 1941.

- SHORT, JAMES E.**, Associate Professor of Education.  
B.Ed., Western Montana College of Education, 1935; M.Ed., University of Washington, 1947; Ed.D., 1949.
- SHUCK, GORDON R.**, Assistant Professor of Chemistry.  
B.S., University of Washington, 1940; M.S., 1942; Ph.D., 1947.
- SLETTEN, VERNON O.**, Associate Professor of Education.  
B.S., University of Washington, 1935; M.A., 1940; Ed.D., University of Oregon, 1954.
- SMITH, DAVID W.**, Instructor in History and Political Science.  
B.S., University of Utah, 1947; M.A., 1948. (On leave of absence, 1954-55.)
- SMITH, FLORENCE M. (Mrs.)**, Professor of Organ and Accompanist.
- SMITH, LEO**, Registrar; Associate Professor of Education.  
B.S., Whitman College, 1927; M.A., University of Washington, 1934.
- SMITH, RUSSELL E.**, Assistant Professor of Law.  
LL.B., Montana State University, 1931.
- SMITH, THEODORE H.**, Dean, School of Business Administration; Professor of Business Administration.  
B.A., Heidelberg College, 1921; M.B.A., Northwestern University, 1926; Ph.D., Ohio State University, 1940.
- SOMMERS, JANE ELLEN (Mrs.)**, Instructor in English.  
B.A., Whitman College, 1953; M.A., Montana State University, 1954.
- SORENSEN, THORA**, Associate Professor of Spanish.  
B.A., Montana State University, 1927; M.A., 1945; Ph.D., Mexico National University, 1948.
- SPEER, J. B.**, Controller Emeritus; Professor Emeritus of Business Administration.  
B.A., Montana State University, 1908; LL.B., University of Michigan, 1916.
- SPEER, LUCILE E.**, Documents and Serials Librarian (Associate Professor).  
B.A., Montana State University, 1924; M.A., University of Chicago, 1925.
- STAEHLE, JOHN F.**, Associate Professor of Education.  
B.A., Pacific University, 1941; M.A., University of Oregon, 1947; Ed.D., 1951.
- STEVENSON, MAYNARD B.**, Instructor in Mathematics.  
B.A., Montana State University, 1953; M.A., 1954.
- STEWART, DORIS MAE**, Instructor in Zoology.  
B.S., College of Puget Sound, 1948; M.S., 1949; Ph.D., University of Washington, 1953.
- STEWART, JOHN M.**, Associate Professor of Chemistry.  
B.A., Montana State University, 1941; Ph.D., University of Illinois, 1944.
- STONE, ALBERT W.**, Assistant Professor of Law.  
B.A., University of California, 1943; LL.B., Duke University, 1948.
- STONE, ROBERT N.**, Research Fellow in Forestry Management; (On staff Autumn, 1954 and Winter, 1955.) Instructor in Forestry; (Spring, 1955.)  
B.S., Michigan State College, 1953; M.S.F., Montana State University, 1955.
- STOODLEY, AGNES L.**, Professor of Health and Physical Education.  
B.A., San Jose State College, 1927; M.S., University of Wisconsin, 1932; Ed.D., Stanford University, 1947.
- STRAUGHAN, JAMES H.**, Assistant Professor of Psychology and Philosophy.  
B.A., University of Florida, 1948; Ph.D., Indiana University, 1954.
- SUCHY, JOHN F.**, Professor of Pharmaceutical Chemistry.  
Ph.C., B.S., Montana State University, 1917; M.S., University of Colorado, 1927; Ph.D., 1934.
- SULLIVAN, ROBERT E.**, Assistant Dean, School of Law; Dean, effective May 1, 1955; Professor of Law.  
B.A., University of Notre Dame, 1940; LL.B., Notre Dame Law School, 1946.
- SWACKHAMER, JOHN W.**, Assistant Professor of Economics.  
B.A., Lafayette College, 1946; M.A., State University of Iowa, 1947; Ph.D., 1949. (Deceased May 10, 1955.)

- SWANSON, MARGARET A. (Mrs.), Instructor in Business Administration.  
B.S., University of North Dakota, 1937; M.Ed., University of Washington, 1952.
- SWEARINGEN, T. G., Maintenance Engineer.  
B.A., Montana State University, 1920.
- TASCHER, HAROLD, Associate Professor of Sociology.  
B.A., University of Illinois, 1925; M.A., 1926; Ph.D., 1932.
- TAYLOR, NORMAN E., Instructor in Business Administration.  
B.A., University of California, 1941; M.B.A., 1947.
- TEEL, STANLEY M., Professor of Music.  
B.Mus., DePauw University, 1925; M.Ed., Montana State University, 1943. (Deceased September 9, 1954.)
- THEIS, SUSIE L., Catalog Librarian (Assistant Professor).  
B.S., Simmons College, 1945; M.S., University of Illinois, 1952.
- THOMAS, BART E., Professor Emeritus of Spanish.  
B.S., Wisconsin State Teachers College, 1901; B.A., Montana State University, 1924; Ph.D., University of Wisconsin, 1937.
- THOMPSON, JANE (Mrs.), Head Resident, Corbin Hall.
- TOELLE, J. HOWARD, Dixon Professor of Law.  
B.A., Indiana University, 1913; LL.B., 1914; M.A., 1916; LL.M., Harvard University, 1925.
- TOLANDER, DONNA, Assistant Director, Affiliated School of Religion.  
B.A., State University of Iowa, 1952.
- TURNER, ROBERT T., Professor of History and Political Science.  
B.A., University of California at Los Angeles, 1939; M.A., 1940; Ph.D., 1945.
- VAN DUSER, CYRILE C., Student Employment Secretary (Instructor).  
B.A., Montana State University, 1927.
- VINOCUR, DORIS (Mrs.), Assistant in English.  
B.A., Michigan State College, 1941; M.A., University of Michigan, 1945.
- VINOCUR, JACOB, Instructor in English.  
B.A., Michigan State College, 1947; M.A., 1949.
- VOGT, VERNON C., Instructor in Economics.  
B.S., University of Wisconsin, 1948; M.S., 1950.
- WALLES, JOHN L., Assistant Professor of Pharmacy.  
B.S., University of Colorado, 1946; M.S., 1947; Ph.D., 1954.
- WALDRON, ELLIS L., Assistant Professor of History and Political Science.  
B.A., Ohio State University, 1936; M.A., University of Wisconsin, 1939; Ph.D., 1953.
- WALSH, MARGARET, Instructor in Music.  
B.Mus., Michigan State College, 1952; M.Mus., Eastman School of Music, 1953.
- WARREN, ROXANA, Instructor in Speech.  
B.A., Montana State University, 1953; M.A., 1954.
- WATERBURY, THOMAS L., Assistant Professor of Law.  
B.A., University of Michigan, 1948; J.D., 1950; LL.M., 1953.
- WATERS, CHARLES W., Professor of Forestry and Botany.  
B.S., B.L., Berea College, 1919; M.A., Ohio State University, 1921; Ph.D., University of Michigan, 1927.
- WEIDMAN, ROBERT M., Instructor in Geology.  
B.S., California Institute of Technology, 1944; M.A., Indiana University, 1949.
- WEISBERG, A. HERMAN, Professor Emeritus of Music.  
Studied Leipzig Royal Conservatory, Germany, 1901-1903; Paris, 1903-1904.
- WEISBERG, FLORA B. (Mrs.), Assistant Professor Emeritus of German.  
B.A., Montana State University, 1928.
- WEISEL, GEORGE F., Associate Professor of Zoology.  
B.A., Montana State University, 1940; M.A., 1942; Ph.D., University of California at Los Angeles, 1949.

- WEISTANER, DAVIS A.**, Research Fellow, Forest Pathology.  
B.S., Montana State University, 1953; M.S.F., 1955.
- WENDT, RUDOLPH**, Associate Professor of Music.  
B.Mus., Eastman School of Music, 1936; M.Mus., 1946.
- WHITE, M. CATHERINE**, Assistant Librarian and Reference Librarian  
(Professor).  
B.A., Montana State University, 1927; M.A., 1940.
- WHITE, WALLACE T.**, Head Resident, Craig Hall.  
B.S., University of Illinois, 1949; M.A., 1951.
- WHITESSEL, THEODORE L.**, Associate Professor of Business Administration.  
B.Ed., Eastern Illinois State College, 1931; B.S., University of Illinois,  
1932; M.S., 1933; Ph.D., 1952.
- WIGHT, W. RAY**, Assistant Professor of Journalism.  
B.A., University of Utah, 1934; M.A., 1952.
- WILEY, BERNICE K.**, Dietitian, Residence Halls.  
B.A., Montana State University, 1951.
- WILLIAMS, JERRY R.**, Assistant Professor of Physical Education; Head  
Football Coach.  
B.S., Washington State College, 1949. (Appointed March 28, 1955.)
- WILLIAMS, ROSS A.**, Dean of the School of Forestry; Director of Montana.  
Forest and Conservation Experiment Station; Professor of Forestry.  
B.S.F., Montana State University, 1921; M.F., Yale University, 1923.
- WILSON, BRENDA F. (Mrs.)**, Professor of Business Administration.  
B.A., Montana State University, 1932; M.A., University of Southern Cal-  
ifornia, 1939.
- WILSON, VINCENT**, Assistant Professor of Health and Physical Education.  
B.A., Montana State University, 1943; M.A., New York University, 1947.
- WOLLOCK, ABE.**, Instructor in Drama.  
B.A., Brooklyn College, 1947; M.A., Cornell University, 1948.
- WORDEN, DONOVAN, JR.**, Lecturer in Business Administration.  
B.A., Montana State University, 1941; LL.B., 1948.
- WREN, MELVIN C.**, Professor of History and Political Science.  
B.A., State University of Iowa, 1936; M.A., 1938; Ph.D., 1939.
- WRIGHT, PHILIP L.**, Professor of Zoology.  
B.S., University of New Hampshire, 1935; M.S., 1937; Ph.D., University  
of Wisconsin, 1940.
- WUNDERLICH, HERBERT J.**, Dean of Students; Professor of Education.  
B.A., University of Idaho, 1928; M.A., Harvard University, 1933; Ed.D.,  
Stanford University, 1952.
- YATES, LELAND M.**, Instructor in Chemistry (in charge of storeroom).  
B.A., Montana State University, 1938; M.A., 1940.
- ZEGER, JOHN F.**, Instructor in Health and Physical Education; Assistant  
Football Coach.  
B.A., University of Washington, 1949.
- ZEUTY, EDWARD J.**, Associate Professor of Air Science and Tactics.  
Major, U. S. Air Force.
- ZIMNY, ROBERT J.**, Instructor in Health and Physical Education; As-  
sistant Football Coach.  
B.S., Indiana University, 1951. (Appointed April 14, 1955.)
- ZURKO, MIKE A.**, Assistant in Air Science and Tactics; Military Property  
Custodian.  
Master Sergeant, U. S. Air Force.

### GRADUATE ASSISTANTS

- BAHAR, HUSHANG**, Graduate Assistant in Sociology and Anthropology.  
Diploma, Indiana Forest College, 1947; B.A., Montana State University,  
1954.
- CARD, KENNETH B.**, Graduate Assistant in Education.  
B.S., Montana State College, 1948.

- CARL, WILLIAM J., Graduate Assistant in English.  
B.A., Carroll College, 1954. (Resigned March 18, 1955.)
- CORCORAN, BARBARA, Graduate Assistant in English.  
B.A., Wellesley College, 1933.
- ESTA, ALBERT J., Graduate Assistant in English.  
B.A., College of Great Falls, 1951.
- EYER, WALTER W., Graduate Assistant in History and Political Science.  
B.A., Montana State University, 1955.
- GRIESER, KENNETH C., Graduate Assistant in Zoology.  
B.S., University of Idaho, 1953.
- HANSEN, DAVID A., Graduate Assistant in English.  
B.A., Swarthmore College, 1952. (On staff Winter and Spring, 1955.)
- HARDY, JAMES L., Graduate Assistant in Bacteriology.  
B.A., Montana State University, 1954.
- JUSTUS, LANE D., Graduate Assistant in Music.  
B.Mus., Montana State University, 1952.
- LARSON, BEN R., Graduate Assistant in Education.  
B.S., Western Montana College of Education, 1954.
- L'EVEQUE, MARGARET E., Graduate Assistant in Music.  
B.Mus., Huron College, 1952.
- LONG, WILLIAM A., Graduate Assistant in Geology.  
B.S.F., State College of Washington, 1948; B.S., 1949; B.Ed., 1950.
- MCCULLOUGH, JUDITH B., Graduate Assistant in History and Political Science.  
B.A., Montana State University, 1954.
- MARVIN, JOHN W., Graduate Assistant in Mathematics.  
B.A., Montana State University, 1954.
- MIDTHUN, ELMER E., Graduate Assistant in Economics.  
B.A., Montana State University, 1951.
- MORRIS, ELIZABETH G., Graduate Assistant in English.  
B.S., Arizona State College, 1953.
- MORRISON, LLOYD, Graduate Assistant in Forestry.  
B.S., Montana State University, 1952.
- NYE, WILLIAM W., Graduate Assistant in English.  
B.A., Gustavus Adolphus College, 1953.
- PATTON, HAROLD G., Graduate Assistant in Music.  
B.Mus.Ed., Montana State University, 1951.
- RICHARDSON, TOM C., Graduate Assistant in Speech.  
B.A., Washington State College, 1928. (On staff Winter, 1955.)
- SEARS, HOWARD S., Graduate Assistant in Zoology.  
B.S., Montana State University, 1953.
- SMALLWOOD, KENNETH B., Graduate Assistant in Geology.  
B.A., Montana State University, 1949.
- TZOUGANATOU, CATHERINE, Graduate Assistant in English.  
B.A., Montana State University, 1954.

## PARTIAL LIST OF

## NEW FACULTY APPOINTMENTS FOR 1955-56

- BETSKY, SEYMOUR, Assistant Professor of English.  
B.A., City College (New York), 1934; M.A., Harvard University, 1939;  
Ph.D., 1942.
- BEYERS, JOHN M., Instructor in Foreign Languages.  
B.A., University of Utah, 1949; M.A., 1953.
- BIER, JESSE, Instructor in English.  
B.A., Bucknell University, 1949.
- BRAUN, HAROLD A., Director of Student Health Service (Assistant Professor).  
M.D., Harvard Medical School, 1947.
- COX, FORREST, Head Basketball Coach; Assistant Professor of Health and Physical Education.  
B.A., University of Kansas, 1931.

- DISNEY, RICHARD L., JR.**, Assistant Professor of Journalism.  
B.A., University of Oklahoma, 1937.
- FIELDS, ROBERT W.**, Assistant Professor of Geology.  
B.A., University of California, 1949; Ph.D., 1952.
- GEBHART, JAMES W.**, Assistant Professor of Education.  
B.S., Heidelberg College, 1924; M.S., Ohio State University, 1936.
- HAYDEN, RICHARD J.**, Assistant Professor of Physics.  
B.A., Oberlin College, 1943; M.S., University of Chicago, 1948; Ph.D., 1948.
- HOFFMAN, ROBERT S.**, Instructor in Zoology.  
B.S., Utah State Agricultural College, 1950; M.A., University of California, 1954; Ph.D., 1955.
- HOOK, WALTER**, Assistant Professor of Art.  
B.A., Montana State University, 1942; M.A., University of New Mexico, 1950.
- HULING, RICHARD T.**, Assistant Professor of Zoology.  
B.A., Marietta College, 1948; M.A., University of Wisconsin, 1950; Ph.D., 1953.
- JOHNSON, MAXINE (Mrs.)**, Research Associate, Business Administration.  
B.A., Washington State College, 1948; M.A., Montana State University, 1954.
- KING, WALTER N.**, Assistant Professor of English.  
B.A., Montana State University, 1946; M.A., 1948; Ph.D., Yale University, 1952.
- LINDSTROM, THAIS S.**, Assistant Professor of Foreign Languages.  
B.A., Hunter College, 1932; M.A., University of California at Los Angeles, 1948; Ph.D., University of Paris (France), 1951.
- LITTLEFIELD, SARAH W.**, Assistant Professor of Home Economics.  
B.S., University of Maine, 1938; M.S., Iowa State College, 1953.
- MCEVOY, RAYMOND H.**, Assistant Professor of Economics.  
B.A., University of Chicago, 1942; M.A., 1947; Ph.D., 1950.
- MILLIS, GEORGE H.**, Assistant Professor of Education.  
B.E., Wisconsin State College, 1940; M.S., University of Wisconsin, 1948.
- PETERS, WILLIAM S.**, Associate Professor of Business Administration.  
B.S., Dartmouth College, 1946; M.B.A., University of Pennsylvania, 1948; Ph.D., 1954.
- PETERSON, JOHN A.**, Instructor in Mathematics.  
B.A., Montana State University, 1949; M.A., 1951.
- POWELL, WARD H.**, Assistant Professor of Foreign Languages.  
B.A., University of Nebraska, 1938; M.A., 1940.
- PROVOST, OSCAR A.**, Professor of Law.  
B.A., Carroll College, 1937; LL.B., Georgetown University, 1932.
- REE, RIMHAK**, Lecturer in Mathematics.  
B.A., Keijyo Imperial University, 1944; Ph.D., University of British Columbia, 1955.
- REMINGTON, RICHARD**, Instructor in Mathematics.  
B.A., Montana State University, 1952; M.A., 1954.
- SCHWAB, SUSAN E.**, Instructor in Music.  
B.S., University of Minnesota, 1953; M.Mus., Montana State University, 1954.
- STEWART, GERTRUDE H. (Mrs.)**, Assistant to Director of Food Services and Residence Halls.  
B.A., Montana State University, 1925.
- ÜHLER, JACK E.**, Assistant Director of Food Service and Residence Halls.  
B.S., Pennsylvania State College.
- WATSON, DONALD A.**, Assistant Professor of Business Administration.  
B.A., State University of Iowa, 1947; M.A., 1948; Ph.D., 1951.
- WHITE, ELAINE**, Executive Secretary of School of Education.  
B.A., Montana State University, 1940; M.A., 1941.
- ZILLY, JACK**, Freshman Football Coach; Freshman Basketball Coach; Head Baseball Coach; Instructor in Health and Physical Education.  
B.A., University of Notre Dame, 1947.

## 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 30,000 about 100 miles west of the continental divide on the headwaters of the Columbia river system in west central Montana. Located at an elevation of 3200 feet, it is served by two transcontinental railroads, bus lines operating on the main east-west north-south U.S. highways, and by air.

### SUPPORT AND ENDOWMENT

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

### CAMPUS AND PHYSICAL PLANT

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

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

### CONTROL AND ADMINISTRATION

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

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

The right is reserved to change any of the rules and regulations of the University at any time including those relating to admission, instruc-



tion, 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.

## COURSES OF INSTRUCTION

Fields of instruction at Montana State University are described throughout this catalog. No degrees are offered by the University in fields in which it is not fully accredited.

To a considerable extent Montana policy forbids the duplication of specialized instruction in its state institutions of higher education. Engineering and agriculture are thus taught at Montana State College at Bozeman, Montana, except that Forest Engineering is taught at Montana State University at Missoula and mining and petroleum engineering are offered at the State School of Mines at Butte. Elementary teacher training is conducted at Montana State University at Missoula, Montana State College at Bozeman, Western Montana College of Education at Dillon, Eastern Montana College of Education at Billings, and Northern Montana College at Havre.

## BIOLOGICAL STATION

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 2000 acres.

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

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

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

## WILDLIFE RESEARCH UNIT

ASSOCIATE PROFESSOR JOHN J. CRAIGHEAD (Leader);  
PROFESSORS MELVIN S. MORRIS (Assistant Leader), PHILIP  
L. WRIGHT (Assistant Leader).

The Montana Cooperative Wildlife Research Unit was established at Montana State University in 1949. The Unit is controlled, 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 Montana Fish and Game Commission in order to make it possible for the Commission to improve management of the wildlife resources for the benefit of the citizens of Montana. At the same time this research work carried on under the supervision of the Unit Leader and University Faculty contributes to the training of graduate students in the fields of Wildlife Management and Wildlife Technology.

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

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

## TYPOGRAPHICAL LABORATORY AND PRESS

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

## PUBLIC SERVICE DIVISION

Andrew C. Cogswell, director; Bert B. Hansen, coordinator of community services; Earl Martell, director of publications and editor of news service; William Spahr, radio programing director; Miss Mary Margaret Courtney, Home Study and Adult Education secretary; Mrs. Ralph E. Fields, alumni records secretary.

The Public Service Division is the administrative agency through which the University carries on its off-campus activities and services. In it are the departments of Home Study and Adult Education, Alumni Relations, Radio Programing, and the Publications and News Service. In addition the divisions work directly with communities and groups in community historical pageant-dramas, community surveys, institutes, forums, etc. For organizations desiring speakers and programs from the campus, a lecture and concert bureau is maintained.

Within the Public Service Division are maintained the campus offices of the Montana State University Alumni Association and the Endowment Foundation of Montana State University.

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

## SUMMER COLLEGE

The Summer Session of ten-weeks is divided into two five-week terms. Students may attend either five-week term or the full ten-week session. The 1956 Summer Session will open June 11 and close August 17; the first five-week term, June 11 to July 13; the second five-week term, July 16 to August 17.

Courses will be offered in all departments and schools except Pharmacy, Forestry and Bacteriology, 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 satisfactorily completed.

Full information regarding the Summer Session may be obtained from the Registrar or the Director of the Summer College.

## ACCREDITATION

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

## THE LIBRARY

More than 393,178 volumes and government documents are housed in the library building and in departmental libraries.

The library receives 900 periodicals in addition to newspapers and college exchanges, the current numbers of which are available in the reading room.

Any student may obtain "stack permission" for one year by securing the signature of a faculty member and the approval of the librarian. Any reputable person not connected with the University may obtain admittance to the stacks with the signature of the librarian on a pass card.

## FINANCIAL OBLIGATIONS

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 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.

**STUDENT FEES.** The following is a detailed schedule of quarterly fees authorized for the college years 1955-57 in all schools and departments except where otherwise specified. In the event of a change to a semester plan of operation, the semester fees will be 50% above the quarterly fees. Fees are subject to modification by action of the State Board of Education.

ALL STUDENTS REGISTERED  
FOR SEVEN OR MORE CREDITS:

Registration	\$5.00	} Waived to holders of Montana high school and University honor scholarships.
Incidental (for laboratory supplies in all courses, locker fees, gymnasium towel service, diploma, etc.)	15.00	
Building	5.00	
Student Union Building	4.00	
Student Activity For support of activities sponsored by the Associated Students of Montana State University.	10.00	Optional to students who have a B.A. or B.S. degree and to students registered for less than seven credits.
Health Service	5.00	Required of all students enrolled for class work.
	<hr/> \$44.00	
General deposit (charges for loss, breakage, and fines deducted)	10.00	Paid once and unused forfeited.
	<hr/>	
Total, first quarter in attendance	\$54.00	
Majors in School of Music pay an additional fee (per quarter)	\$20.00	
Non-residents (out-of-state) pay additional (per quarter)	\$25.00	If registered for less than seven credits, \$4.00 per credit, with minimum of \$8.00 per quarter.

**NON-RESIDENT FEES.** Students who have not resided in the State of Montana for at least 12 months immediately prior to entering Montana State University and whose parents are not residents of the state are required to pay the non-resident fee (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.

**LIMITED REGISTRANTS** (students registered for less than seven credits): Registration Fee \$5.00; Incidental Fee \$7.50; General Deposit \$5.00; Building Fee \$2.50; Student Union Building \$2.00; Health Service \$5.00; Student Activity \$10.00 (optional). *Non-residents pay \$4.00 per credit with minimum of \$8.00.* "Listeners" (students who enroll for courses without credit) pay the same fees as students enrolled for less than seven credits.

**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.

**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 \$25.00 per quarter. The student activity fee is optional to students who have a B.S. or B.A. degree.

#### FEES FOR SPECIAL PURPOSES :

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

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

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

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

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

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

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

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

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

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

#### WEEK OF INSTRUCTION

	FIRST	SECOND	THIRD	FOURTH
Registration (\$5.00) .....	None	None	None	None
Incidental (\$15.00) .....	75%	50%	50%	None
Building (\$5.00) .....	100%	50%	50%	None
Student Union Building (\$4.00) .....	None	None	None	None
Student Activity (\$10.00) .....	100%	50%	50%	None
Health Service (\$5.00) .....	100%	50%	50%	None
(No refunds if medical service furnished or physical examinations taken.)				
Non-Resident Tuition (\$25.00) .....	80%	60%	40%	20%
School of Music Majors (\$20.00) .....	Refund based on charge of \$1.75 per lesson for the number of weeks elapsed since the beginning of the quarter.			

**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.

## REQUIREMENTS FOR ADMISSION

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

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

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

*Students transferring from other colleges will be required to meet these requirements.*

**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.** Any 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 student who has attended another institution of higher education of recognized standing will be admitted to Montana State University upon presentation of a statement from the registrar of the former college or university showing that the student has met regular entrance requirements and is eligible to return to that school or showing that his record is such as would assure his admission to, or reinstatement at, this University had he previously been one of its students. Graduates of approved two-year normal and junior colleges are regularly admitted to junior standing at Montana State University. 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. One day at the beginning of other quarters is also used for this purpose. A student's registration is subject to the approval of an appointed faculty adviser until choice of major field of study has been made; after this choice, the head (or his delegate) of the department or school in which the curriculum is offered becomes the adviser.

**ORIENTATION WEEK.** The first week of autumn quarter is set aside for the orientation and registration of new students. The program includes: (1) Acquainting the student with the campus, the classroom buildings, and residence halls. (2) Explaining the University program in detail—the types of instruction offered and the careers for which a student may prepare at the University. (3) 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 may 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 fields of specialization.

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

In addition to these 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 student on proper forms and filed at the Registrar's Office.

**WITHDRAWAL FROM A COURSE.** (1) During the first four weeks of a quarter, a student may withdraw from a course in which he has registered with the consent of his adviser, the instructor concerned and the chairman of the department or school in which the student is majoring. A "W" (withdrawal) will be assigned. (2) During the period from the fourth through the sixth week, the student must secure consent as in (1) above and also secure consent of the chairman of the Board of Advisers. In these cases the instructor must indicate whether the student is passing or failing. If the student is passing a "W" will be assigned; if failing a grade of F will be assigned unless changed for due cause by joint action of the instructor involved, the adviser and the chairman of the Board of Advisers. (3) During the period from the sixth through the ninth week of the quarter a student withdrawing from a course receives a grade of F unless changed for due cause by joint action of the instructor involved, the adviser and the chairman of the Board of Advisers. (4) After the ninth week the student who withdraws receives a grade, usually incomplete. (5) All withdrawals must be formal and must be recorded by the student with the Registrar on proper forms secured from the registrar's office.

**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 COURSE.** When a course in which a student has previously received credit is repeated with proper authorization, the credit and the first grade received are automatically cancelled and the credit and second grade are recorded, even if the second grade is lower. In order to obtain authorization to repeat a course, the student must file with the registrar at the time of registration a petition carrying ap-



proval of the adviser, the chairman of the department in which the student is majoring and of the chairman of the department in which the course is given.

**INDEPENDENT WORK.** Credit is allowed superior students of junior and senior standing for independent work in topics or problems chosen by themselves with the approval of the 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 12 credit hours is required for full subsistence under the veterans' bills for the second world war. A minimum of 14 credit hours is required for full payment under the Korean G. I. Bills.

### DEGREES OFFERED

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

### GRADING SYSTEM

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

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

In thesis and law courses the letter "n", not accompanied by a grade, is assigned at the end of each quarter to indicate that the student is entitled to continue in 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; 2½ grade points for each credit of C+; 2 grade points for each credit of C; 1 grade point for each credit of D. In a subject in which an "incomplete" grade has been received, grade points are counted only after this incomplete has been removed.

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

### REQUIREMENTS FOR GRADUATION

**CANDIDACY FOR A DEGREE.** Students of the University who are admitted as candidates for a degree must have satisfied the following conditions: (a) they must have fulfilled the entrance requirements of regular students; (b) they must complete the general University requirements shown in the following paragraphs. Students who are candidates for degrees or certificates must file formal applications with

the Registrar on the date specified on Official University Notices. Applications must be filed at least one quarter preceding the quarter in which requirements are to be completed.

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

**CREDITS REQUIRED FOR A MAJOR.** Students may be required to complete from 40 to 55 credits in the chosen field. Not more than 65 credits, including 5 credits earned in survey courses which are allowed in some curricula, may be counted towards graduation. 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 Dance, including any Ballet courses taken as physical education, may be counted towards graduation.

Only students majoring in Business Administration, those taking a teaching major or minor in Business Administration or those following the curricula in Secretarial-Home Arts are allowed to present more than 19 credits earned in Business Administration 20abc, 21, 22abc, 23abc, and 42.

**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.

Students whose work falls too far below the C average required for graduation are, under certain circumstances, dropped from the University. Students are dropped for the following reasons: (1) In any quarter the student receives F's in courses whose credits total 12 or more; (2) The student receives F's in two successive quarters in courses whose credits total 16 or more; (3) The student's deficiency score has reached 40 or more.

A deficiency score is the number obtained by adding to the grade point deficiency the total number of credits of courses in which F has been received. This score may be based solely on F's if there is no grade point deficiency. If a student retakes a course in which he received an F and receives a passing grade, this eliminates the penalty for the F. In case the student has less than a C average on credits earned, he will have a grade point deficiency which will be the difference between twice the number of credits earned and the student's total grade points.

After a student has been once dropped for scholarship 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, 6 quarters (10 credits) required of all freshmen and sophomore men unless excused for cause. This work must be completed during the first six quarters unless deferred upon petition by the student. Veterans are excused from this requirement. Two quarters of Air Science 10, Air Force Band, may be substituted for Air Science or Military Science 1c and 2c. Students may transfer from Army to Air ROTC or vice versa with permission of the PAS and PMS&T.
- (3) Freshman Composition English 11ab, 2 quarters (10 credits) or English 12abc, 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 A without credit before enrolling in English 11a or 12a. Students who receive a grade of "A" in English 11a are not required to take English 11b, and those who receive an "A" in English 12b need not take English 12c.

**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 of the sub-groups as listed under groups I, II, and III, except that course General 13abc (15 credits) and course General 15abc (15 credits) will satisfy the requirements in groups I and III respectively.

**Group I.** Astronomy (Math A-11), Bacteriology, Botany, Chemistry, General 13abc (15 credits or Botany 10a or 11a and General 13bc, or General 13ac and Zoology 10, or Zoology 10 and Botany 10a or 11a and General 13c), Geology, Mathematics, Physics and Zoology.

**Group II.** Anthropology, Economics, History, Journalism (only course 36 to a maximum of 3 credits and 190), Political Science, Sociology.

**Group III.** Art (course 31abc only), English (literature courses only), Foreign Languages (13, 15 and literature courses only), General 15abc (15 credits), Philosophy, Psychology, Religion (courses 18 and 75 only), Music (course 35abc only).

In the School of Forestry, Group II requirement may be satisfied by Forestry 148, 4 cr., Journalism 134, 3 cr., and Economics 14a, 4 cr. Five credits of Speech are to be accepted as part of the Group III requirement.

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

In the School of Music students majoring in Music Education are required to meet two of the three group requirements and those majoring in Applied Music are required to meet all three group requirements.

For elementary school teachers, two quarters of Humanities 15abc and one quarter of literature satisfy Group III requirements.

For elementary teachers, Group I requirements may be satisfied by two quarters of Biological Science 13abc and one quarter of Physical Science for Teachers (General 25).

**FOREIGN LANGUAGE REQUIREMENT.** In some curricula a knowledge of either a modern or classical foreign language is required. Such requirements may be satisfied by demonstrating a reading knowledge, 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, or by five quarters' study of the language at the University. The demonstration of a reading knowledge is to be certified by the department of Foreign Languages. A student may continue in the University the study of a foreign language begun in high school in the course indicated by a required placement examination.

**CORRESPONDENCE STUDY.** Up to 45 credits earned by correspondence study may be counted toward graduation except that a student must earn 35 of his final 45 credits in resident study at the University.

**VETERANS' CREDIT.** Upon application veterans may be granted three types of credit—for their work in college training programs such as C.T.D., A.S.T.P., and Navy V-12; for work completed in special service training courses in accordance with the recommendations of the American Council on Education; and not more than 12 "unassigned" credits at the rate of three credits for the first three months of service and one additional credit for each subsequent four months of service.

**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 catalog.

**SENIOR EXAMINATIONS FOR HONORS.** A student who wishes to be graduated with honors or high honors must meet the following requirements: (1) For honors, in the beginning of his last quarter he must have an index of at least 3.1 for all credits registered for in his entire record as well as in the major field; (2) For high honors, at the beginning of his last quarter he must have an index of at least 3.5 for all credits registered for in his entire record as well as in the major field. A student who transfers credits earned elsewhere to this university must meet the scholastic index indicated on grades earned at Montana State University as well as on his entire record; (3) The student must take an examination, oral or written or both, as determined by the major department or school; (4) He must pass the examination with a grade of "A" or "B"; (5) After these qualifications have been met, the candidate for honors must then receive the recommendations of his major department and of the faculty of Montana State University.

### STUDENT SERVICES

At Montana State University, an integrated program of student services is coordinated through the Division of Student Personnel Services. Satisfactory student growth, socially, emotionally, and educationally, is the purpose of the program. Student services concerned with the welfare of students include the deans of students, the counseling center, health service, placement service, student housing, student union, student loans, and undergraduate scholarships.

#### OFFICE OF DEAN OF STUDENTS

The Office of Dean of Students has responsibility for the coordination of student personnel services and general supervision of all student welfare. Through personal counsel 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.

#### TESTING CENTER

A testing service has been established as a regular part of the University's program. Through a testing program the University helps the students determine suitable educational and vocational objectives. Students are assisted in study habits, reading techniques, and personal adjustments. An extensive library of occupational information is available in the Testing Center to inform students on vocational opportunities.

#### STUDENT HEALTH SERVICE

The Student Health Service is maintained in order to safeguard the health of the students and to furnish competent medical service and nursing care to those who become ill. The privileges of the Health Service are available to all students who pay the required fee at the time of registration. Facilities and services available include:

- (1) Office and dispensary service by physician and nurses.
- (2) House calls by University physician only in case of emergencies or serious illness.

(3) Medicines used in dispensary and infirmary. Prescriptions will be filled at the University Pharmacy and charged to the students at cost, plus a small percentage for overhead.

(4) All office, dispensary, and physiotherapy treatments.

(5) Physical examinations on all entering students. These examinations are required.

(6) A chest X-ray will be given all students each year, if possible.

(7) Immunizations for: smallpox, typhoid fever, diphtheria and tetanus.

(8) Medical consultation when requested by University physician, but not to exceed \$10.00 each school year.

(9) Infirmary care up to 15 days per quarter.

(10) All medical and surgical diagnosis.

(11) All laboratory work and X-rays done in the University infirmary.

(12) Health certifications.

*No allowance or payments are made by the Health service for:*

(1) Eye refractions and glasses.

(2) Dental services and dental X-rays.

(3) Special nurses.

(4) Injuries occurring through accidents off the campus.

(5) Treatment of chronic illness.

(6) Allergy and obstetrical cases.

(7) Hospitalizations, surgery and surgeon fees.

(8) Physical examinations for outside employment.

The privileges of the Health Service are available only during the quarter for which the student is registered and has paid the required fee. The Health Service assumes no responsibility between quarters or during vacations.

#### PLACEMENT SERVICE

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

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

#### STUDENT HOUSING

Residence facilities include five residence halls, two housing projects for married students, a women's cooperative house, eight fraternity and six sorority houses, and 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.

**RESIDENCE HALLS.** Application forms for residence and detailed information may be obtained by writing the Registrar's Office, Montana State University. A \$10.00 deposit is required with each room application. If a room reservation is cancelled, notice in writing must be received by the Manager of Residence Halls on or before September 8 for fall quarter, December 8 for winter quarter, and March 7 for spring quarter. Students will be assigned to the residence halls on arrival. Students who live in the residence halls are required to board in the Lodge.

Rooms in the residence halls are furnished with single beds, chests or dressers, study table, chairs, and a wastebasket. Each bed is supplied with a mattress, mattress pad, pillow, pillow case, sheets, and two woolen blankets. Bed linen is laundered by the residence halls without extra charge. Window curtains are provided and maintained. Students should bring a bed spread, dresser scarf, towels, wash clothes, water glass and an extra blanket, if needed. A study lamp and a small rug are desirable. Students should not bring electric cooking equipment, electric irons, furniture, or curtains.

Social life in the halls is encouraged through residence hall clubs and numerous activities. Adult counselors cooperate with the students in making living in the halls enjoyable and beneficial. A fee of \$1.00 per quarter is assessed the residents in each hall. This fund is expended for social activities which are planned by the group.

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

Rates: Board for the quarter is \$117.00 to \$130.00 depending upon the length of the quarter. Board rates are calculated at \$1.60 per day. Room rates by the quarter, per person are: One in a room, \$72, two in a room, \$55; multiple, \$44. Rates are subject to change.

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

**WOMEN'S COOPERATIVE HOUSE.** A women's cooperative house provides an opportunity for girls to gain experience in group living while reducing 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, Women's Cooperative House, 601 Daly Avenue, Missoula, Montana.

**FRATERNITY AND SORORITY HOUSES.** Eight national fraternities and six national sororities maintain their own residences under university supervision. Membership in fraternities and sororities is by invitation, but eligibility for initiation is based on satisfactory scholarship. Sorority houses are under the immediate supervision of resident housemothers, who are appointed with the approval of the Associate Dean of Students.

#### STUDENT ACTIVITIES CENTERS

The Lodge is the new extra-curricular center of student life. It is the home of student social and governmental activities. Every student registered at Montana State University 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.

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

### LOANS AND EMPLOYMENT

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

### 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 are administered 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 the name of the University is required to conduct all its affairs in a manner creditable to the University. Organizations and individuals will be held responsible to this principle. The use of liquor and gambling are not permitted in University buildings or on University grounds. The use of liquor is not approved at social functions.

### ABSENCES

**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.

### STUDENT ORGANIZATIONS

**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 12:00 p.m. 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 grounds for cancellation of matriculation.

## ACTIVITIES

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

The new Auditorium-Field House occupies a ground area approximately the size of a standard city block. Movable seats, stages, floors, and other equipment make it usable as an auditorium, arena, practice field, etc. There is seating for over 6000 for basketball, 4,000 for shows or concerts. Two large lobbies serve for displays and smaller meetings. It is to be used for convocations, commencement exercises, alumni reunions, pageants, 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 and adheres to all regulations of the Conference regarding eligibility. Aid to students may be given only in conformity with the regulations of the Mountain States Athletic Conference.

### ANNUAL INTERSCHOLASTIC GAMES

For forty-nine 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 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.

### SOCIETIES

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 entertainments.

The Associated Women students is an organization made up of all women students in the University for the purpose of regulating matters pertaining to the student life of its members.

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

In addition to several small musical ensembles, there are the following large organizations: The University A Cappella 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 a local honorary organization for senior men chosen for their service and leadership in campus citizenship.

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

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

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

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

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

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

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

Scabbard and Blade is a National Military Honorary Society for selected Advanced ROTC students. The Society is 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 officer in 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.

The ROTC Sponsor Corps is a local women's military 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

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### COLLEGE OF ARTS AND SCIENCES

Anthropology  
 The Arts  
 Bacteriology and Hygiene  
 Biological Sciences  
 Botany  
 Chemistry  
 Economics  
 English  
 French  
 Geology  
 German  
 Greek  
 Health and Physical Education  
 History  
 Home Economics  
 Italian  
 Latin  
 Liberal Arts

Mathematics  
 Medical Technology  
 Philosophy  
 Physical Sciences  
 Physics  
 Political Science  
 Pre-Medical Sciences  
 Psychology  
 Radio  
 Russian  
 Secretarial-Home Arts  
 Social Sciences  
 Social Work  
 Sociology  
 Spanish  
 Speech  
 Wildlife Technology  
 Zoology

The College of Arts and Sciences has two primary objectives: To provide the student with a general liberal education and to give him the opportunity to attain competence in some special field of knowledge. The liberal education has as its objectives the development in the student of the habit of organized thinking; of the ability to communicate with others; of the appreciation of art, literature, music and the sciences; of responsibility in social behavior; and of emotional and intellectual maturity. The competence in a special field usually finds its expression in the problem of earning a living.

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### GRADUATE SCHOOL

DIVISION OF PUBLIC SERVICE

SCHOOL OF BUSINESS ADMINISTRATION

SCHOOL OF EDUCATION

THE COLLEGE OF FINE ARTS

Art

Dance

Drama

Music

SCHOOL OF FORESTRY

SCHOOL OF JOURNALISM

SCHOOL OF LAW

SCHOOL OF PHARMACY

RESERVE OFFICERS TRAINING CORPS

SUMMER COLLEGE

AFFILIATED SCHOOL OF RELIGION

MONTANA COOPERATIVE WILDLIFE RESEARCH UNIT

THE UNIVERSITY PRESS

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### COURSE NUMBERING SYSTEM

Note—In the following outline of courses, the length of a course and the quarter or quarters in which it is given are indicated immediately after its title. Courses numbered from 1 to 99 are offered for undergraduate credit only; those numbered from 100 to 199 are offered for credit to undergraduates of junior and senior standing and to graduates; those numbered from 200 to 299 are offered for graduate credit only. In courses numbered a, b, c, credits may be granted upon completion of a quarter's work. In courses numbered a, b, c the first quarter of a course is prerequisite to the second quarter and the second quarter is prerequisite to the third quarter, unless otherwise indicated. This outline is as nearly complete as it can be made and it affords the student information which is necessary in arranging his course. When the student has decided upon his major course, he is ex-

pected to follow closely the work which is outlined as the required course in that line of study or research.

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 special cases and with the written approval of the President.

## THE ARTS

Following are the requirements for the Bachelor of Arts Degree with a major in the arts:

University Requirements	Credits
English Composition (English 11ab, or 12abc) .....	9-10
Group I .....	12
Group II .....	12
Group III (Including Major Requirements which apply in this group) .....	12
Physical Education .....	6
Military Science (Men) .....	10
General Major Requirements	
Aesthetics .....	5
Foreign Language .....	15
This requirement may be fulfilled by passing a placement examination in 13, placement in 11c and 5 credits, 11b and 10 credits, or by taking 15 credits of university work in one language.	
Thirty-six credits in four of the five following fields:	36
Art	
History of Art (31) .....	3
Drawing (23), Color and Design (25), History of Art (31) .....	6
	9
Drama	
Introduction to the theater (30) .....	3
Elementary Acting (40), Elementary Direction (41), Elementary Stagecraft (50), Stage Makeup (75), Stage Costuming (126), Stage Design (197) .....	6
	9
Speech	
Principles of Speech (20) .....	5
Oral Interpretation of Literature (69) .....	3
	8
Music	
Listening to Music (35) .....	3
Other music courses approved by the adviser and Music School .....	6
	9
Creative Writing	
Composition (30b) .....	3
Creative Writing (103abc), Creative Writing (160abc), Shakespeare (157bc), or The Novel (104abc)....	6
	9
Concentration	
Credits in one of the above fields (in addition to those earned under the General Major Requirements) .....	36
Electives to make enough credits for graduation.	

## BACTERIOLOGY AND HYGIENE

Professor Donald M. Hetler, Chairman; Assistant Professor Edmund E. Jeffers; Lecturers (at Rocky Mountain Laboratory, U. S. Public Health Service) Carl M. Eklund, Bill H. Hoyer, David B. Lackman, Richard A. Ormsbee.

**HIGH SCHOOL PREPARATION.** In addition to the general requirement for admission to the University the student needs algebra and geometry. It is also recommended that the high school preparation include advanced algebra and French or German.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN BACTERIOLOGY.** In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in Bacteriology: 40 or

more credits including the following courses: Bacteriology 117, 118, 119, 121, 125, 131, 3 credits of 129. Also Chemistry 17 and 38ab; Physics 11abc or 20abc. In addition, major students must have a reading knowledge of a modern foreign language.

## FOR UNDERGRADUATES

19. **ELEMENTARY BACTERIOLOGY.** 1 Q. Autumn. 5 cr. Open to all students, but may not be applied toward a major in bacteriology. Designed for nursing, home economics, and sociology students. Fundamentals of general bacteriology pathogenic bacteriology and immunology.

26. **GENERAL HYGIENE.** 1 Q. Winter. 3 cr. Open to all students. An informational course dealing with the subjects as related to the individual, the community, and the state. Bacterial and protozoan diseases, food, exercise, sleep, ventilation, drainage, disinfectants, quarantine, and public health. Not a laboratory course.

## FOR UNDERGRADUATES AND GRADUATES

101ab. **PHARMACEUTICAL BACTERIOLOGY.** 2 Q. Autumn, winter. 5 cr. each quarter. Prerequisites, Chemistry 38ab, Physics 11abc or 20abc. General coverage of fundamental bacteriology, pathogenic bacteriology, and immunology as it applies to the fields of pharmacy and medicine. These courses cannot be applied as partial credit for a major in the department.

103. **PARASITOLOGY.** 1 Q. Winter. 5 cr. Prerequisites, Zoology 10 and junior standing. An introduction to parasitology.

117. **GENERAL BACTERIOLOGY.** 1 Q. Autumn. 5 cr. Prerequisites, Chemistry 38ab and Physics 20abc or equivalent and consent of instructor. Laboratory technique; physiology of bacteria and effect of environmental factors on bacteria; microbiology of soil, water, milk, and other foods; microbiology in industry. Students who have taken Bacteriology 19 may not receive full credit for this work. This is a duplication of the course formerly numbered 119a.

118. **IMMUNOLOGY.** 1 Q. Winter. 5 cr. Prerequisites, Bacteriology 117 and consent of instructor. General principles of immunity, and laboratory work in serology, animal experimentation, and clinical diagnosis. This is a duplication of the course formerly numbered 120.

119. **PATHOGENIC BACTERIOLOGY.** 1 Q. Spring. 5 cr. Prerequisite, Bacteriology 118. The characteristics of micro-organisms and their relation to the etiology, prophylaxis, and control of infectious diseases. This is a duplication of the course formerly numbered 119b.

121. **DIAGNOSTIC BACTERIOLOGY.** 1 Q. Spring. 5 cr. Prerequisite, Bacteriology 119 or concurrent registration. Laboratory work embraces the standard diagnostic methods used in hospitals and public health laboratories.

122. **BACTERIOLOGY OF FOODS AND WATER.** 1 Q. Winter. 5 cr. Prerequisite, Bacteriology 19 or 117. Standard methods of water analysis. Examination of milk, oysters, meat, canned foods, etc. Laboratory.

125. **HEMATOLOGY.** 1 Q. Autumn. Winter. 5 cr. Prerequisites, junior standing and Bacteriology 119. An intensive study of the blood in health and disease.

126. **SANITATION AND PUBLIC HEALTH.** 1 Q. Spring. 5 cr. Prerequisites, junior standing and Bacteriology 19 or 117. Sanitation and disease prevention with relation to the community. Surveys, reports.

129. **BACTERIOLOGICAL JOURNALS.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Prerequisites, senior standing and 15 credits in bacteriology. Study of current bacteriological and public health literature.

131. **ADVANCED BACTERIOLOGY.** 1-3 Q. Autumn, winter, spring. 2-5 cr. each quarter. Prerequisites, consent of instructor and Bacteriology 118. The results of modern experimental bacteriology and hygiene. Each student may be assigned individual work in advanced technique.

190. **SEMINAR.** 1 Q. Any quarter. 2-5 cr. Prerequisites, senior standing and 20 credits in bacteriology. Advanced study of various fields of bacteriology, immunology, parasitology and public health.

131. **ADVANCED IMMUNOLOGY.** 1 Q. Any quarter. 3-5 cr. Prerequisites, senior standing and Bacteriology 118, study of the advanced theories and their applications in the field of immunology.

192. **VIRUSES.** 1 Q. Any quarter. 5 cr. Prerequisites, senior standing and Bacteriology 119. Their detection, activities and application to medicine.

193. **MICRO-BIOLOGICAL PHYSIOLOGY.** 1 Q. Any quarter. 3-5 cr. Prerequisites, senior standing and 20 credits in bacteriology. Physiology of bacteria and related micro-organisms.

## FOR GRADUATES

200. ADVANCED BACTERIOLOGICAL PROBLEMS. 1-3 Q. Autumn, winter, spring. Credit variable. Prerequisites, Bacteriology 131 or equivalent and consent of instructor. Opportunity is given graduate students to pursue original or assigned investigations individually.

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

## BIOLOGICAL SCIENCES

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

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN BIOLOGICAL SCIENCES.** The requirements in this major are such as to enable the student to qualify for graduate study in either botany or zoology. In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in Biological Sciences: 57 or more credits in Biological Science including Bot. 11ab (General Botany), Bot. 12 (Classification of Spring Flora) or Bot. S61 (Classification of Summer Flora), Bot. 22 (Plant Physiology), Bot. 151 (Plant Ecology), Bot. 126 (Evolution), Zool. 10 (General Zoology), Zool. 15 (Field Zoology), Zool. 23 (Comparative Vertebrate Zoology), Zool. 24 (Human Physiology), Bact. 19 (Elementary Bacteriology), Gen. 100 (Conservation of Natural and Human Resources).

The following courses must be completed: Chem. 11abc (General Chemistry) or Chem. 13ab (Inorganic Chemistry) and Chem. 13c (Qualitative Analysis), 2 quarters (3 recommended) of Physics 11abc or 20abc (General Physics).

Suggested electives: Zoology 11 (General Zoology) and one or more quarters of Zool. 129 (Biological Literature). As much election as possible from the Humanities and Social Science fields.

A reading knowledge of a modern foreign language is required.

Students who plan to fulfill the requirements for a Secondary School Teaching Certificate should check with the Dean of the School of Education or the Registrar.

## BOTANY

Professors Reuben A. Diertert, Joseph Kramer, J. W. Severy (Chairman), Charles W. Waters; Assistant Professors Meyer Chessin, LeRoy H. Harvey.

**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 French or German.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN BOTANY.** In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in Botany: 50 or more credits including Botany 11ab, 12, 22, 121, 151, and at least one quarter of Botany 170. Zoology 125 may be applied in partial fulfillment of this credit requirement. The following courses must be completed. Zoology 10, 11, 15, 24, 125, 3 credits of 129; Chemistry 11abc or 13ab. Electives from Botany 141, 142, 143, 160, S163, 164, 165, 168, S174, S176, S199, and General 13c. A reading knowledge of German or French is required for all majors in Botany.

Courses 27, S61, 125, 151, 160, and 164 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.

## FOR UNDERGRADUATES

10a. FORESTRY BOTANY. 1 Q. Autumn. Winter. 5 cr. No prerequisite. An introduction to the anatomy and physiology of the higher plants.

11a. GENERAL BOTANY. 1 Q. Autumn, Summer. 5 cr. No prerequisite. A presentation of the general principles of the anatomy and physiology of the flowering plants.

11b. GENERAL BOTANY. 1 Q. Winter. Summer. 5 cr. No prerequisite. 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 structure of plants.

12. CLASSIFICATION OF SPRING FLORA. 1 Q. Spring. 3 cr. Prerequisites, General 13a or Botany 10a or 11a. A laboratory and field course in the use of a manual for the identification of the higher plants. Also, methods of collecting, pressing, and mounting plants.

13. PHARMACEUTICAL BOTANY. 1 Q. Winter. 5 cr. No prerequisite. 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.

22. PLANT PHYSIOLOGY. 1 Q. Winter. 5 cr. Prerequisites, Botany 10a or 11ab and Chemistry 11abc or 13ab. The functions of the living plant and an attempt to interpret functions in terms of chemical and physical reactions. Laboratory observations of the various processes of plants under controlled conditions.

27. ELEMENTS OF PLANT ECOLOGY. 1 Q. Spring. 3 cr. Prerequisites, Botany 10a, 12 and 22. An introduction to ecological principles including inter-relationship of environmental factors, primary, and secondary succession, plant indicators, vegetation units.

S61. CLASSIFICATION OF SUMMER FLORA. 1 Q. Summer. 4 cr. Open to all students. Identification of the summer flowering plants with the use of a manual. Laboratory and field work; methods of collecting, pressing and mounting specimens.

#### FOR UNDERGRADUATES AND GRADUATES

121. PLANT ANATOMY. 1 Q. Autumn. 5 cr. Prerequisites, Botany 11ab and 12. Detailed study of origin of organs and tissues of plants and a comprehensive survey of the anatomy of the higher plants. Given in 1955-56 and in alternate years.

125. FOREST PATHOLOGY. 1 Q. Spring. 5 cr. Prerequisites, junior standing and Botany 27 and Forestry 26ab. The agencies of disease and decay of trees and structural timbers. Problems of government forests.

126. EVOLUTION. 1 Q. Winter. 3 cr. Prerequisites, Botany 11ab and 12, and Zoology 10 and 15 and junior standing. The theories of evolution from the historical point of view; the nature of evolutionary processes, the evidence for evolution, and the factors of evolution. Not a laboratory course. Students may not receive credit for this course and the identical course Zoology 126.

129. BIOLOGICAL LITERATURE. 3 Q. Autumn, winter, spring. 1 cr. each quarter. Prerequisites, senior standing and 20 credits in Botany or Zoology and consent of the chairman of the Department of Botany or Zoology. Reviews of recent literature as a survey of the trend of investigation and experimentation in biological fields. Reports of special studies.

141. MORPHOLOGY OF THE THALLOPHYTES. 1 Q. Autumn. 5 cr. Prerequisites, junior standing and Botany 11ab, and 12. A systematic study of the morphology and life histories of representative Thallophytes. Given in 1956-57 and in alternate years.

142. MORPHOLOGY OF THE BRYOPHYTES AND PTERIDOPHYTES. 1 Q. Winter. 4 cr. Prerequisites, junior standing and Botany 11ab and 12. Comparative morphology of the Bryophytes and Pteridophytes. Given in 1956-57 and in alternate years.

143. MORPHOLOGY OF THE SPERMATOPHYTES. 1 Q. Spring. 4 cr. Prerequisites, junior standing and Botany 11ab, and 12. Morphology and life histories of representatives of the major groups of Gymnosperms and Angiosperms. Given in 1956-57 and in alternate years.

151. PLANT ECOLOGY. 1 Q. Spring. 5 cr. Prerequisites, Botany 11ab, 12, and 22. A detailed analysis of the environmental factors, emphasizing inter-relationship of habitat and vegetation. The concepts of plant succession and retrogression. The plant indicator concept. Analysis of the climax vegetation concept. Distribution of vegetation in North America.

160. GENERAL SYSTEMATIC BOTANY. 1 Q. Spring. 5 cr. Prerequisites, junior standing and Botany 11ab and 12 or equivalent. The identification and classification of vascular plants; principles of nomenclature; ecological distribution; methods of collecting, pressing and mounting plants.

164. AGROSTOLOGY. 1 Q. Winter. 5 cr. Prerequisites, junior standing and Botany 10a or 11a and 12. 160 recommended. Identification, classification, and ecological relationships of grasses, sedges, and rushes. Students who have received credit in 161a may not take this course for credit.

165. MYCOLOGY. 1 Q. Autumn. 5 cr. Prerequisite, Botany 141 for Botany majors; Botany 125 for Forestry majors. The classification and relationships of the fungi, with training in their collection and preservation.

168. MICROTECHNIQUE. 1 Q. Any quarter, but preferably in the spring. 2-5 cr. Course may be repeated during a succeeding quarter to a maximum of 5 credits. Prerequisite, 15 credits in Botany. Methods of preparing microscopic slides with various mounting media; emphasis upon the paraffin technique.



170. **ADVANCED BOTANY.** 1 Q. Any quarter. 2-5 cr. General prerequisite, junior standing and consent of instructor.

(I) Physiology. Prerequisite, Botany 22.

(II) Ecology. Prerequisite, Botany 151.

(III) Morphology. Prerequisite, one quarter of Botany 141 or 142 or 143.

(IV) Taxonomy. Prerequisite, Botany 160.

May be repeated during succeeding quarters.

#### FOR GRADUATES

200. **ADVANCED BOTANICAL PROBLEMS.** 1-3 Q. Any quarter. Credit variable. The department is prepared to arrange for properly qualified graduate students, courses in plant anatomy, ecology, morphology, physiology, or taxonomy.

299. **THESIS.** Any quarter. Credit variable. Maximum credit allowable 15.

#### COURSES OFFERED AT THE BIOLOGICAL STATION:

S163. **AQUATIC FLOWERING PLANTS.** 1 Q. Summer. 3 cr. Prerequisite, Botany 160. Identification, classification, and ecological distribution of the higher aquatic plants.

S164. **AGROSTOLOGY.** 1 Q. Summer. 3 cr. Prerequisite, Botany 160. Identification, classification and ecological relationships of the grasses, sedges, and rushes.

S174. **FRESH WATER ALGAE.** 1 Q. Summer. 3 cr. Prerequisites, junior standing and Botany 11ab, and 12. Identification, classification, distribution, life histories and limnological relationships of the algae of the Northern Rocky Mountains.

S176. **BRYOPHYTES.** 1 Q. Summer. 3 cr. Prerequisites, junior standing, Botany 11ab and 12 or equivalent. The taxonomy, morphology, and ecology of the Bryophytes of the Northern Rocky Mountains.

S199. **SPECIAL PROBLEMS IN BOTANY.** 1 Q. Summer. Credit variable (3-6). Course may be repeated not to exceed a maximum of 12 credits. Prerequisites, at least 20 credits in botany, junior standing and consent of instructor.

S200. **ADVANCED BOTANICAL PROBLEMS.** 1-3 Q. Credit variable. The department is prepared to arrange for properly qualified graduate students, courses in plant anatomy, ecology, morphology, physiology, or taxonomy.

## BUSINESS ADMINISTRATION

Professors Roy J. W. Ely, Donald J. Emblen, Albert T. Helbing, Harold J. Hoflich, Robert C. Line, Theodore H. Smith (Dean), Brenda Farrell Wilson; Associate Professor William S. Peters; Assistant Professors Edwin O. Dwyer, Herbert R. Kroeker, Alvihild Martinson, O. F. Rydell, Donald A. Watson; Acting Assistant Professor Fred A. Henningsen; Instructors Margaret A. Swanson, William T. Boone, Frances Colvill, R. H. Robinson, Norman E. Taylor, Donovan Worden, Jr.

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

**THE PROGRAM IN THE SCHOOL OF BUSINESS ADMINISTRATION.** Upon entering the University, a student indicating his or her desire to major in Business Administration is registered as a Pre-Business Administration major and a Business Administration School staff member is assigned as adviser.

The first two years are occupied in completing 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 the following: English 11ab or 12abc, 9 or 10 cr.; Health and Physical Education 11abc, 12abc, 6 cr.; Mathematics and Science, 13-15 cr.; Economics 14ab, 8 cr.; History and Political Science, (17a recommended), 4 cr.; group requirements from Group III, 12-15 cr.; Speech 20, 5 cr.; Bus. Ad. 11ab, 10 cr.; ROTC (men), 10 cr. (Secretarial and business teaching majors are not required to take Pol. Sci. 17a and Speech 20.)

**BUSINESS ADMINISTRATION MAJORS** (junior standing required). To achieve the degree of Bachelor of Science in Business Administration the student must offer 180 credits (plus 6 credits in Health and Physical Education); successfully complete the general university and pre-business requirements; present not less than 96 credits (includes Health and Physical

Education) of work taken in schools and departments other than the School of Business Administration; complete Bus. Ad. 123, 129, 134 or Econ. 101, 141abc, 151, 185, 195; select an area of concentration; offer not less than a total of 75 credits in courses in the School of Business Administration and courses accepted by the School of Business Administration as listed below:

- (a) Courses outside the School of Business Administration which may count toward the 75 credit requirement are: all courses offered by the Department of Economics (except Econ. 10), English 161, History 125 and 126.
- (b) The following additional courses are acceptable in areas of concentration developed in the curriculum of the School of Business Administration:
  - Marketing area of concentration—Journalism 143, 144, Home Economics 17c, 18.
  - Management area of concentration—Psychology 140, 141.

Students majoring in Secretarial Science and Business Teaching are not required to take Bus. Ad. 141c, 185, and 195, and may substitute 105 for 129.

**AREAS OF CONCENTRATION.** Before the beginning of the third quarter of his junior year, the student shall select one of the following areas: Accounting; Banking and Finance; Insurance; Industrial Organization, Management and Personnel; Marketing; General Business; Combination Business and Law; Secretarial; Business Teaching. The course work required in each of these areas of concentration is listed below. Deviations from the prescribed program must have the approval of the adviser in the area of concentration and the Dean of the School.

### ACCOUNTING

Adviser, Emblen.

Students majoring in accounting will elect the course of study designed to provide training for either (1) industrial accounting or (2) public accounting.

A minimum of 38 credits in accounting subjects is required for a major in accounting. Bus. Ad. 133 is required for all majors in accounting, as well as Bus. Ad. 11ab, 12ab, 114ab.

The courses suggested for a specific curriculum are presented below and are in addition to the basic courses:

- (a) Industrial Accounting (14 credits)—Bus. Ad. 113a, 145ab, 148, 191.
- (b) Public Accounting—a minimum of 14 credits from the following—Bus. Ad. 113ab, 115ab, 145ab, 146ab, 147, 149.

### BANKING AND FINANCE

Adviser, Hoflich.

25-26 credits including Bus. Ad. 12a, 132, 133, 134 or Econ. 101, 135 or 154, and 156a.

### INSURANCE

Adviser, Hoflich

27 credits including Bus. Ad. 123, 124, 125, 131, 132, 154, 156a.

### INDUSTRIAL ORGANIZATION, MANAGEMENT AND PERSONNEL

Adviser, Helbing.

25 credits including Bus. Ad. 114a, 129, 181ab, 182, Econ. 113a, Psych. 140 or 141.

### MARKETING

Adviser, Line

26 credits including Bus. Ad. 151, 153, 155, 158, 159, and 194.

### GENERAL BUSINESS

Adviser, Helbing

20-21 credits including Bus. Ad. 12a, 133 or 156a, 155 or 158, 181a, and 182.

**COMBINED COURSE IN BUSINESS ADMINISTRATION AND LAW**

Adviser, Smith.

The university offers a combined curriculum which leads to the degree of Bachelor of Science in Business Administration at the end of four academic years and the degree of Bachelor of Laws at the end of six academic years. In this program a student must satisfy fully the University and School of Business Administration curriculum requirements and, during his junior year in the School of Business Administration, must complete Bus. Ad. 123, 129, 134 or Econ. 101, 151, 185, plus 13 additional credits as electives within the School of Business Administration (other than Bus. Ad. 141abc).

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

Upon completion of the foregoing program with at least a 2.0 index of grade points earned to 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.

**SECRETARIAL SCIENCE**

Advisers, Martinson and Swanson

Candidates for the degree of Bachelor of Science in Business Administration concentrating in Secretarial Science are required to take the following courses in addition to the core courses in Business Administration: Bus. Ad. 21, 22abc, 23ab, 24ab, 25, 26, 27, 100. Most of these courses should be taken in the junior and senior years. If a student contemplates only a two-year program, by special permission these courses may be taken in his freshman and sophomore years.

**BUSINESS TEACHING MAJORS**

Adviser, Wilson.

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

To secure the degree of Bachelor of Science in Business Administration with a teaching certificate a student must meet the requirements of the School of Business Administration and include the following Secretarial Science courses: Bus. Ad. 21, 22abc, 25, 26, 27 and 128.

**BUREAU OF BUSINESS AND ECONOMIC RESEARCH.** The Bureau of Business and Economic Research has been established as an integral part of the School of Business Administration to extend its services to the people of Montana (1) through research which will contribute to the most effective use of resources of Montana and the highest possible living standards; (2) by presenting analyses of current business conditions and developments, and by making studies which are useful and will be of particular interest and value to the Montana business communities and (3) by providing opportunities and assistance for research by faculty members and students, thus enriching the instruction of students and broadening the contribution of faculty members to the intellectual and economic life of the state.

**ACCOUNTING****FOR UNDERGRADUATES**

11ab. **ELEMENTARY ACCOUNTING.** 2 Q. Autumn, winter, spring, summer. 5 cr. each quarter. A student may be exempt from 11a upon passing a placement examination admitting him to 11b. Fundamental principles as applied to proprietorship, partnership, and corporation.

12ab. **INTERMEDIATE ACCOUNTING.** 2 Q. Autumn, winter, Spring (12a). 4 cr. each quarter. Prerequisite, Bus. Ad. 11ab. Financial statements preparation and analysis. Examination of the needs of management for accounting information. Accounting theory as it applies to income determination and the valuation of assets, liabilities, and surplus. Special accounting problems of corporations. Students who have received credit in Bus. Ad. 12 may not receive credit for 12b.

113ab. **ADVANCED ACCOUNTING.** 2 Q. Winter, spring. 4 credits each quarter. Prerequisite, Bus. Ad. 12ab. Problems of partnerships, installment sales, consignments, branch accounting, receivership accounting, accounting for estates and trusts. Emphasis is given to the theory and preparation of consolidated statements in the second quarter.

114ab. **COST ACCOUNTING.** 2 Q. Winter, spring. 3 cr. each quarter. Prerequisite, Bus. Ad. 11ab. The development of accounting information for management relative to production and distribution costs. Cost accounting systems applicable to various types of production situations are studied, e.g. job order, process, and standard cost systems.

115ab. **AUDITING.** 2 Q. Autumn, winter. 4 cr. each quarter. Prerequisite, Bus. Ad. 113ab. The general scope and purpose of auditing; the audit program, the analytical study of balance sheets and accounting records, with practical problems. The application of the theory of auditing to practical problems, the preparation of financial reports, with full analysis in approved form for submission to clients.

145ab. **INCOME TAX.** 2 Q. 145a, Autumn, winter; 145b, Spring. 3 cr. each quarter. An intensive study of the federal income tax law as it applies to individuals, partnerships, and corporations with practical problems in the preparation of tax returns. Emphasis in the second quarter will be on corporation taxes, including the excess profits tax, and on tax research, both state and federal.

146ab. **ACCOUNTING SYSTEMS.** 2 Q. Autumn, winter. 3 cr. each quarter. Prerequisite, Bus. Ad. 113ab. Accounting problems and types of accounting records of the more common classes of business and government. These classes include: banks, mercantile stores, mining companies, city and state governments, public utilities, contractors, transportation companies, agricultural enterprises, and hotels.

147. **MUNICIPAL ACCOUNTING.** 1 Q. Spring. 3 cr. Prerequisites, Bus. Ad. 11ab and junior standing. A study of accounting principles and problems as applied to state and local governments, and other public institutions.

148. **MANAGERIAL ACCOUNTING.** 1 Q. Spring. 4 cr. Prerequisites, Bus. Ad. 12ab and 114ab, and senior standing. A course 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.

149. **C.P.A. PROBLEMS AND REVIEW.** 1 Q. Spring. 4 cr. Prerequisite, Bus. Ad. 146ab. This course is designed primarily for students preparing to take the examinations for the certificate of Certified Public Accountant. It furnishes a comprehensive review of questions and problems in accounting and auditing given by the American Institute of Accountants.

## BANKING AND FINANCE

### FOR UNDERGRADUATES

101. **MONEY AND BANKING.** 1 Q. Autumn. Summer. 4 cr. Prerequisites, junior standing and Econ. 14ab. A study of money and banking principles and institutions. Students having had Bus. Ad. 134 are not eligible for this course. Students may not receive credit for this course and the identical course Econ. 101.

103ab. **PUBLIC UTILITY ECONOMICS.** 2 Q. Autumn, winter. 4 cr. each quarter. (a) Prerequisites, junior standing and Econ. 14ab. Economics of utilities, history, regulation and rate making. (b) Prerequisite, Econ. 103a. River basins and federal power projects, public and private power. Montana's relation to power development. Students may not receive credit for this course and the identical course Econ. 103ab.

104. **PUBLIC FINANCE.** 1 Q. Winter. Summer. 4 cr. Prerequisites, junior standing and Econ. 14ab. Principles and problems of Federal financing. Students may not receive credit for this course and the identical course Econ. 104.

123. **PRINCIPLES OF INSURANCE.** 1 Q. Autumn. Winter. Spring. 4 cr. Prerequisites, junior standing and Econ. 14ab. An introductory course covering the nature of risk, basic insurance principles, and practices in the more important branches of the insurance business. Students may not receive credit for this course and the identical course Econ. 123.

124. **LIFE, ACCIDENT AND HEALTH INSURANCE.** 1 Q. Winter. 3 cr. Prerequisites, junior standing and Bus. Ad. 123. A study of the principles and practices of sound life insurance covering forms and kinds of policies, rate making, settlement options, reserves and surplus, and government regulation.

125. PROPERTY AND CASUALTY INSURANCE. 1 Q. Spring. 4 cr. Prerequisite Bus. Ad. 123. Property and casualty insurance theory and practice. The social, economic, scientific and legal bases of the various lines of insurance.

130. SOCIAL INSURANCE. 1 Q. Spring. 3 cr. Prerequisites, Econ. 14ab and Bus. Ad. 123. Legal, economic and social aspects of the relation of these insurances to collective bargaining and industrial unrest. Students may not receive credit for this course and the identical course Econ. 130.

131. REAL ESTATE. 1 Q. Autumn. Spring. 4 cr. Prerequisites, junior standing and Econ. 14ab. Factors that affect value of real estate; markets, title and real estate transfers.

132. CREDIT AND CREDIT ADMINISTRATION. 1 Q. Autumn. Winter. 4 cr. Prerequisites, junior standing and Bus. Ad. 134 or Econ. 101. 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.

133. CORPORATION FINANCE. 1 Q. Autumn. Spring. 5 cr. Prerequisites, junior standing and Bus. Ad. 134. The position of corporate organization in modern business; the financial side of organization and promotion; the financial policy with reference to underwriting; capitalization; earnings; surplus; insolvency; receivership and reorganization. Problems and methods of social control. The financial organization of particular corporations. Students may not receive credit for this course and the identical course Econ. 133.

134. FINANCIAL ORGANIZATION. 1 Q. Autumn. Winter. Spring. 5 cr. Prerequisites, junior standing and Econ. 14ab. An introduction to business finance. The course includes an analysis of the financial institutions, commercial banks, investment banks, savings banks, insurance companies, mortgage companies, savings and loan associations, sales finance companies, discount houses and factors and the relationship between these institutions and commercial and industrial enterprises.

135. BANK MANAGEMENT. 1 Q. Spring. 4 cr. Prerequisites, junior standing and Bus. Ad. 101 or 134. A study of the principal problems confronting the executives of commercial banks—liquidity, loan and investment policy, credit analysis, loan administration, interbank borrowing, bank operating costs, bank earnings, and relations with customers, government, and the public.

136. SECURITY AND COMMODITY MARKETS. 1 Q. Winter. 4 cr. Prerequisites, Bus. Ad. 134 and senior standing. The operation of the organized security and commodity exchanges, with special emphasis on the New York Stock Exchange and the Chicago Board of Trade; the relation of the organized exchanges to market stability and orderly pricing.

154. INVESTMENTS. 1 Q. Winter. 4 cr. Prerequisite, Bus. Ad. 134 or Econ. 101. Investment principles from the standpoint of the investor. Includes study of investment objectives, investment media, mechanics of investment, tests of investment values, financial analysis of corporate and governmental securities, and investment plans for individuals and institutions.

156ab. BUSINESS CYCLES AND BUSINESS FORECASTING. 2 Q. Winter, 4 cr.; Spring, 2 cr. Prerequisites, Bus. Ad. 134 or Econ. 101 and senior standing. History, measurement, and analysis of fluctuations in business activity; factors influencing employment, production, prices and national income; problems of interpretation and forecasting; consideration of policies intended to stabilize business conditions. 156a is a prerequisite for 156b. Students may not receive credit for this course and the identical course Econ. 156ab.

## BUSINESS LAW

### FOR UNDERGRADUATES

141abc. BUSINESS LAW. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, junior standing; must be taken in sequence. 141abc are required of all Business Administration students (those students specializing in Secretarial Science and Commercial Teaching are excused from 141c.) (141a) Introduction, contracts, sales; (141b) agency, negotiable instruments; (141c) partnerships, corporations. Pre-law students are not eligible to take this course.

## INDUSTRIAL ORGANIZATION, PRODUCTION AND MANAGEMENT

### FOR UNDERGRADUATES

129. INDUSTRIAL ORGANIZATION AND MANAGEMENT. 1 Q. Autumn. Winter. Spring. 4 cr. Prerequisites, junior standing and Econ. 14ab. An introductory survey of the principles of administration as applied to the organization and operation of manufacturing. It is the basic course in pro-

duction management. It deals with such problems as: building and maintaining the internal organization; plant location and layout; materials procurement and handling; production planning and control; work simplification and methods of improvement; wage and salary administration and other human relations problems such as hiring, training, job evaluation and collective bargaining. Students may not receive credit for this course and the identical course Econ. 129.

162. RETAIL DRUG STORE MANAGEMENT. 1 Q. Winter. 4 cr. Prerequisites, Bus. Ad. 151 and a major in pharmacy. Buying, pricing, selling, store arrangement, display, drug store advertising, credit control, financing and operating ratios.

180. AMERICAN INDUSTRIES. 1 Q. Autumn. Winter. 4 cr. Prerequisite, Bus. Ad. 151. The course deals with complicated economic problems and the technological processes of selected manufacturing industries. It gives a comprehensive picture of the major industries, location factors, their significance in the economy, the structure of each industry and the question of national policy relating thereto because of competition or oligopoly.

181ab. PERSONAL MANAGEMENT. 2 Q. 4 cr. each quarter. 181a. Autumn, winter. 181b. Spring. Prerequisites, Psychology 11, Bus. Ad. 129 and senior standing. (a) Personnel problems and the human relations aspects of management. Organizational aspects, interviewing, man-power utilization, employee and executive training, job evaluation and wage administration, personnel transactions, wage payment systems and social controls. (b) Practice in solving problems and cases and in using the tools of personnel workers in selected areas, such as: job evaluation and wage administration; industrial training and executive development; labor management relations procedures; safety engineering and workmen's compensation.

182. REGULATION OF INDUSTRY. 1 Q. Spring. 4 cr. Prerequisites, senior standing, Bus. Ad. 129 and 151. This course deals with government relationships, with industrial activity, including: efforts to maintain competition; meeting the problem of economic concentration and combination; regulatory practices; patents; interference with free enterprise; direct controls of various phases of economic life; and the action of the courts concerning the constitutionality of regulatory legislation.

185. BUSINESS STATISTICS. 1 Q. Every quarter. 4 cr. Prerequisites, Math. 25, Econ. 14ab, and junior standing. An evaluation and technical study of the measurement of central tendency and dispersion, sampling analysis, index number construction and time series composition, and specialized correlation techniques as applied to business and economic data. This is as much a course in reading and interpretation of statistics as in construction of the standard measures.

186. COMMERCIAL AND TRADE ASSOCIATIONS. 1 Q. Spring. 2 cr. Prerequisite, senior standing. The growth and economic justification of trade associations; a study of their functions, policies, programs, and legal aspects.

## MARKETING

### FOR UNDERGRADUATES

102. TRANSPORTATION. 1 Q. Spring. 4 cr. Prerequisites, junior standing and Econ. 14ab. The principles of railway, ocean, and waterway, motor truck and bus, and air transportation. Students may not receive credit for this course and the identical course Econ. 102.

109. ECONOMICS OF CONSUMPTION. 1 Q. Winter. 3 cr. Prerequisites, junior standing and Econ. 14ab. An analysis of the final stages of the economic process. Students may not receive credit for this course and the identical course Econ. 109.

151. MARKETING. 1 Q. Autumn. Winter. Spring. Summer. 5 cr. Prerequisites, junior standing and Econ. 14ab. The prevailing methods of marketing as they apply to consumer goods, producer goods and raw materials. A study of marketing institutions, marketing functions, merchandising, price policies, and government regulations. Students may not receive credit for this course and the identical course Econ. 151.

152. FOREIGN TRADE. 1 Q. Spring. 4 cr. Prerequisite, Bus. Ad. 151. (Prerequisite of Bus. Ad. 151 waived for seniors majoring in Political Science.) Theories, principles and methods of international trade. Economic resources and products of the principal countries, their chief exports and imports. Students may not receive credit for this course and the identical course Econ. 152.

153. MARKET RESEARCH AND MARKET ANALYSIS. 1 Q. Autumn. Spring. 3 cr. Prerequisites, Bus. Ad. 151 and senior standing. Techniques of planning, research, and analysis involved in the study of sales, consumer acceptance, purchasing power, and kindred market factors. Special emphasis on application, with problems drawn from data of current significance in general marketing and special-commodity fields.

155. ADVERTISING PROCEDURE. 1 Q. Autumn. Winter. Spring. 4 cr. Prerequisite, Bus. Ad. 151. This course is designed to acquaint the students with fundamental principles of advertising as they present themselves to the business executive and to afford some training in the technique of planning and directing advertising campaigns.

158. SALES AND SALES ADMINISTRATION. 1 Q. Autumn. Winter. 5 cr. Selling techniques and strategy, including practice in personal selling; investigation by case studies of the major problems facing the sales executive, including product planning market analysis, and sales potentials, sales organization and promotion, and the recruitment, hiring, training, supervision, evaluation, and control of sales personnel.

159. RETAILING. 1 Q. Autumn. Winter. Spring. 5 cr. Prerequisite, Bus. Ad. 151. Types of retail stores, location, buying, pricing, display, store selling, types of display advertising, and store costs.

160. RETAIL STORE MANAGEMENT. 1 Q. Winter. Spring. 4 cr. Prerequisite, Bus. Ad. 159. A special training course in the principles and practices of managing retail stores.

161. WHOLESALING. 1 Q. Winter. 4 cr. Prerequisite, Bus. Ad. 151. This course analyzes wholesale markets, wholesaling institutions, wholesaling functions as they apply to various commodity lines, with emphasis on purchasing and selling practices, policies as they apply to distribution methods, pricing and services.

194. PRICE AND PRICE POLICY. 1 Q. Spring. 4 cr. Prerequisites, Bus. Ad. 151 and senior standing. How firms and industries arrive at price decisions. An integration of price and value theory with practical business problems carried out through a combination of actual business cases and theoretical analysis.

#### COURSES NOT LISTED IN ANY SPECIFIC FIELD

191. BUSINESS ADMINISTRATION SEMINAR. 1 Q. Any quarter. 2 cr. Prerequisite, senior or graduate standing. An intensive study of specific problems in Business Administration or Economics.

195. ADMINISTRATION AND BUSINESS POLICIES. 1 Q. Autumn. Winter. Spring. 3 cr. Required of all seniors in the School of Business Administration. Integration of the basic work in accounting, finance, marketing, and management.

#### SECRETARIAL AND BUSINESS TEACHER TRAINING

Not more than 19 credits earned in Business Administration 20abc, 21, 22abc, 23abc, and 24ab 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.

20abc. ELEMENTARY TYPEWRITING. 3 Q. Autumn, winter, spring. 2 cr. each quarter. Prerequisite for 20a, none; for 20b, 20a or 15 words a minute in a 5-minute test; for 20c, 20b or 25 words a minute in a 10-minute test. Keyboard drills, copy work, speed and accuracy drills, letters.

21. ADVANCED TYPEWRITING. 1 Q. Autumn. Winter. Spring. 2 cr. Prerequisite, 20c or a minimum typing speed of 35 net words a minute. Speed and accuracy drills and production typewriting. Prerequisite for 24ab.

22abc. STENOGRAPHY. 3 Q. Autumn, winter, spring. 5 cr. each quarter. Combined shorthand and transcription practice: theory and dictation. Students who present one entrance unit of shorthand may not receive credit in 22a, and with 2 units of shorthand may not receive credit in 22b.

23abc. ADVANCED STENOGRAPHY. 3 Q. Autumn, winter, spring. 5 cr. each quarter. Prerequisites for 23a, 22c or dictation speed of 80 words a minute in a 5-minute test; for 23b, 23a or dictation speed of 100 words a minute in a 5-minute test; for 23c, 23b and 24b, or speed of 120 words a minute in shorthand. Concurrent registration in 24ab is required.

24ab. ADVANCED SHORTHAND TRANSCRIPTION. 2 Q. Winter, spring. 1 cr. each quarter. Prerequisite, minimum typing speed of 45 net words a minute or Bus. Ad. 21. Transcription at approximately two-thirds of the straight copy typing speed or about 35 words a minute with a mailable letter standard. Required of Advanced Stenography students.

25. OFFICE MACHINES PRACTICE. Calculators and Adding. 1 Q. Autumn. Winter. Spring. 2 cr. No prerequisite.

26. BEGINNING SECRETARIAL PRACTICE. 1 Q. Autumn. Winter. Spring. 2 cr. Prerequisite, 35 words a minute typing speed. Duplicating, dictating, and transcribing machines.

27. FILING. 2 Q. Winter, spring. 3 cr. each quarter. Prerequisites, Bus. Ad. 22c and consent of instructor. This course includes Principles and Practice in Alphabetic, Numeric, Automatic, Geographic, Alphabetic Subject, Decimal Subject, and Soundex filing.

S30. ADVANCED TYPEWRITING. 1 Q. Summer. 1 cr. Prerequisite, Bus. Ad. 20c or 35 net words a minute. Improvement of skill through the use of electric typewriters.

32. METHODS OF TEACHING BUSINESS SUBJECTS. 1 Q. Autumn. 4 cr. Prerequisites, junior standing or teaching experience in business subjects; Bus. Ad. 11ab, 21, 22c, and 26. Required for teaching majors and minors in Business Administration. Objectives, methods, materials, and trends in the teaching of business subjects in high school. Demonstration lessons. Students may not receive credit for this course and Educ. 32.

100. ADVANCED SECRETARIAL PRACTICE. 1 Q. Autumn, alternate years. 5 cr. Summer. 2 cr. Prerequisites, senior standing or consent of instructor, and Bus. Ad. 21, 23a, 24a, 25, 26, 27. Lecture and laboratory. A review, additional skill building, integration of office machines, dictation, transcription, and secretarial practice. A preparation for State Merit, Junior and Senior Civil Service. Requirements in the course are: 150 words a minute shorthand reading rate, 100 words dictation, and 35 words a minute transcription on mailable letters.

105. OFFICE MANAGEMENT. 1 Q. Autumn. Winter. Spring. Summer. 3 cr. Prerequisite, junior standing. An analysis of principles and methods of scientific office management and the effective handling of office procedure.

S106. IMPROVEMENT OF INSTRUCTION IN OFFICE MACHINES PRACTICE. 1 Q. Summer. 3 cr. Prerequisites, junior standing, major or minor in Bus. Ad. or teaching experience and consent of instructor. Methods and procedures in teaching office machines, selection of materials and equipment, and discussion of individual teaching problems.

S107. IMPROVEMENT OF INSTRUCTION IN SECRETARIAL PRACTICE. 1 Q. Summer. 2 cr. Prerequisites, junior standing, major or minor in Bus. Ad. or teaching experience and consent of instructor. Methods and procedures in teaching secretarial practice, duplicating the high school newspaper, teaching of filing and dictating and transcribing machines. Discussion of individual teaching problems.

128. GREGG SHORTHAND THEORY FOR TEACHERS. 1 Q. Winter. 2 cr. Prerequisites, Bus. Ad. 22c, or teaching experience and consent of instructor. Required of teaching majors and minors in Business Administration unless student can pass a satisfactory test on theory.

S138. PERSONAL INVESTMENTS. 1 Q. Summer. 2 cr. Prerequisite, junior standing. Savings accounts, purchasing a home, purchasing insurance, securities (stocks and bonds), investment trusts, basic facts with which a layman should be acquainted.

S139. PROBLEMS IN TEACHING BOOKKEEPING. 1 Q. Summer. 3 cr. Prerequisites, junior standing, Bus. Ad. 11ab and 32 or teaching experience in bookkeeping and consent of instructor. Methods and materials, testing, grading, standards, and trends in the teaching of bookkeeping.

S142. PROBLEMS IN TEACHING GREGG SHORTHAND. 1 Q. Summer. 3 cr. Prerequisites, Bus. Ad. 22c, 32 or teaching experience in shorthand and consent of instructor. Methods of presentation and analysis of materials in Simplified Shorthand.

S143. PROBLEMS IN TEACHING TYPEWRITING. 1 Q. Summer. 3 cr. Prerequisites, Bus. Ad. 21, 32 or teaching experience in typewriting and consent of instructor. Methods of presentation of keyboard, development of course of study, testing, grading, standards and trends in the teaching of typewriting.

S149. UNIT COURSES IN BUSINESS EDUCATION. Summer. Credit variable. Prerequisites, a major or minor in Business Administration, teaching experience in commercial subjects, or consent of instructor. Several units may be taken in one or more summers, but the total credit in S149 may not exceed 10. Each unit will carry a specific designation of topic covered.

#### FOR GRADUATES

The following courses or their equivalents are required for admission to graduate work in Business Administration: Bus. Ad. 11ab, 129, 134, 151, and 185.

201abc. ECONOMICS OF BUSINESS MANAGEMENT. 3 Q. Autumn, winter, spring. 2 cr. each quarter. The use of economic analysis in formulating business policies and making managerial decisions. The role of profits, business fluctuations, problems of competition and monopoly, costs, market analysis, pricing, and policies relating to labor, consumers and government. Required of all graduate students.

210. CONTROLLERSHIP PRINCIPLES AND PRACTICE. 1 Q. Autumn. 3 cr. Prerequisites, Bus. Ad. 113ab and 115ab. 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.

211. CONTEMPORARY ACCOUNTING THOUGHT AND PRACTICE. 1 Q. Winter. 3 cr. Prerequisites, Bus. Ad. 113ab and 115ab. Modern accounting theory and practice. The development of accounting thought since 1900 and the social significance.

212. THEORY OF INCOME DETERMINATION. 1 Q. Spring. 3 cr. Prerequisites, Bus. Ad. 113ab and 115ab. The theories underlying the accounting calculation and disclosure of periodic net income. Economic, legal and tax concepts of income.

221. THEORY AND MANAGEMENT OF CENTRAL BANKING. 1 Q. Autumn. 3 cr. 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.

222. PROBLEMS OF CORPORATE FINANCIAL MANAGEMENT. 1 Q. Winter. 3 cr. Prerequisite, Bus. Ad. 133. 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.

223. SECURITY ANALYSIS. 1 Q. Spring. 3 cr. Prerequisite, Bus. Ad. 222. The principles and technique of security analysis. 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).

231. MARKETING THEORY. 1 Q. Autumn. 3 cr. A critical review of marketing literature, advertising, distribution, consumption, consumer credit, price and price theories, perfect and imperfect competition, costs and efficiency, public and private regulation.

232. MARKET RESEARCH, MARKET ANALYSIS AND SALES PLANNING. 1 Q. Winter. 3 cr. Prerequisite, Bus. Ad. 153. Specific consumer and industrial case studies in planning the marketing of different types of products. Adaptation and utilization of statistical procedures, analysis of distribution costs and operating ratios as guides to profitable operations, short and long term sales planning.

233. MARKETING PROBLEMS. 1 Q. Spring. 3 cr. Prerequisite, Bus. Ad. 232. Case studies of problems facing the marketing executive. Identification of the problem, procedure to be adopted to find satisfactory solutions. Cases will encompass (1) market research, (2) distribution, (3) merchandising, (4) sales management and other allied problems.

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

## CHEMISTRY

Professors Joseph W. Howard, Earl C. Lory (Chairman), Associate Professors Richard E. Juday, John M. Stewart; Assistant Professors R. Keith Osterheld, Gordon R. Shuck; Instructor Leland M. Yates.

**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 German.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN CHEMISTRY.** In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in Chemistry: chemistry 11abc and 13c or 13abc, 15, 17, 4 credits of 111, 33ab, 102, 106ab at least 5 credits from 103, 150, 160, 170, 3 credits of 113abc. At the time of his graduation a major student in Chemistry must have acquired a reading knowledge of German. Also college physics and mathematics through calculus. Elementary mineralogy is desirable.

Every student is required to pass a senior comprehensive examination.

### FOR UNDERGRADUATES

11abc. GENERAL CHEMISTRY.. 3 Q. Autumn, winter, spring. 5 cr. each quarter. Open to students who present no entrance units and no college credit in chemistry.

13ab. INORGANIC CHEMISTRY. 2 Q. Autumn, winter. 5 cr. each quarter. Prerequisites, one year of high school chemistry and passage of a placement examination. The fundamental laws of chemistry; proper-

ties and relations of the non-metallic and metallic elements. Students who have completed Chemistry 11abc may not receive credit for 13ab, but are eligible for credit in 13c.

13c. QUALITATIVE ANALYSIS. 1 Q. Spring. Summer. 5 cr. Prerequisite, Chemistry 11abc or 13ab. The theory and methods of qualitative analysis. Semi-micro techniques are used.

15. ADVANCED QUALITATIVE ANALYSIS. 1 Q. Winter. 5 cr. Prerequisite, Chemistry 13c. An extension of course 13c, including many of the less common elements.

17. QUANTITATIVE ANALYSIS. 1 Q. Spring. Summer. 5 cr. Prerequisite, Chemistry 13c. Introduction to quantitative gravimetric and volumetric methods.

19. ORGANIC CHEMISTRY. 1 Q. Winter. Summer. 5 cr. Prerequisite Chemistry 11abc or 13ab. Brief survey of the field of organic chemistry. Intended primarily for students of home economics.

38ab. THE CARBON COMPOUNDS. 2 Q. Autumn, winter. 5 cr. each quarter. Prerequisite. Chemistry 11abc or 13ab. Students who have taken Chemistry 19 will not receive full credit for this course. A detailed, systematic study of organic chemistry. Intended for chemistry, pharmacy, and pre-medical students. Students who have received credit in 101ab may not receive credit for this course.

40. ELEMENTARY PHYSICAL CHEMISTRY. 1 Q. Autumn. 5 cr. Prerequisites, Chemistry 17, 38ab, 15 cr. of college physics. Those portions of physical chemistry which are of especial interest to prospective students of medicine.

#### FOR UNDERGRADUATES AND GRADUATES

102. ORGANIC QUALITATIVE ANALYSIS. 1 Q. Spring. 2 cr. Prerequisite, Chemistry 38ab. Systematic methods of identification of pure organic compounds and mixtures; general class reactions of organic chemistry.

103. PHYSIOLOGICAL CHEMISTRY. 1 Q. Spring. 5 or 6 cr. Prerequisite, Chemistry 19 or 38ab. Chemistry and metabolism of proteins, lipids, and carbohydrates; respiration; colloids.

106ab. PHYSICAL CHEMISTRY. 2 Q. Autumn, winter. 5 cr. each quarter. Prerequisites, Chemistry 17, 38ab, Physics 20abc and Mathematics 23. The prerequisite in organic chemistry may be waived at the discretion of the instructor for students majoring in other departments who present two quarters of calculus and additional courses in physics. The more important methods, results, and problems of theoretical chemistry.

109. INORGANIC INDUSTRIAL CHEMISTRY. 1 Q. Spring. 5 cr. Prerequisites, Chemistry 13c and 38ab. The chemistry of industrial and engineering materials and the discussion of technical chemical processes. Given in alternate years.

110. ORGANIC INDUSTRIAL CHEMISTRY. 1 Q. Spring. 5 cr. Prerequisites, Chemistry 13c and 38ab. Given in alternate years.

111. TECHNICAL ANALYSIS. 1 Q. Autumn. Winter. Spring. Summer. 2-4 cr. Course may be taken two quarters for a total of not more than 4 credits. Prerequisite, Chemistry 17. Analysis of materials of commercial importance. The work is varied according to the needs of the individual.

113abc. JOURNAL CLUB. 3 Q. Autumn, winter, spring. 1 cr. each quarter. Prerequisites, Chemistry 17, 38ab, and a reading knowledge of German or French. Students may enter any quarter. Presentation and discussion of current journal literature by upperclassmen and the departmental staff. This course may be repeated for credit.

150. ADVANCED INORGANIC CHEMISTRY. 1 Q. Spring. 5 cr. Prerequisites, Chemistry 13abc (or 11abc and 13c), 17, 38ab and 102. Lectures and laboratory.

160. ADVANCED ORGANIC CHEMISTRY. 1 Q. Spring. 5 cr. Prerequisites, Chemistry 38ab and 102. Lectures and laboratory.

162. ADVANCED ORGANIC LABORATORY TECHNIQUES. 1 Q. Any quarter. 2-3 cr. Prerequisite, Chemistry 38ab. (Credit not allowed in both Chemistry 160 and 162.)

170. ADVANCED PHYSICAL CHEMISTRY. 1 Q. Spring. 5 cr. Prerequisite, Chemistry 106. Lectures and laboratory.

#### FOR GRADUATES

200. ADVANCED COURSES AND RESEARCH. The department is prepared to arrange for properly qualified students courses in inorganic, analytical, organic, physical, industrial chemistry, or in bio-chemistry.

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

## ECONOMICS

Professors Roy J. W. Ely (Chairman), Albert T. Helbing, Robert C. Line: Assistant Professors Herbert R. Kroeker, Raymond H. McEvoy.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN ECONOMICS.** In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in Economics. Five quarters (23-25 credits) of a classical or modern language, or a reading knowledge of the language, or a minimum of 12 or more credits in addition to group requirements in philosophy and literature to be chosen from the following: Philosophy 50, 55, one or both, and remainder of the 12 or more credits from English 59abc, 104abc or 177abc.

**ECONOMICS CONCENTRATION.** Minimum of 50 credits in economics. Sophomore year: Economics 14ab. Political Science 17, Anthropology 15 or Sociology 16. Junior and Senior years: Economics 101, 104, 111, 112, 113ab, 118. Remainder according to student's interests. History 125 and 126 and Political Science 136 may be counted toward a major in economics. Student may emphasize: general economic theory, labor economics, consumer economics, utility economics, economics of finance, or world economics. It is recommended that the student take two or more of the following: History 21ab, Business Administration 11ab, Mathematics 25.

**ECONOMICS AND SOCIOLOGY CONCENTRATION.** Minimum of 60 credits. With the exception of 113b, requirements are either Anthropology 14 or 15, Sociology 16, 119, 120, 122, 129.

**ECONOMICS-LAW COMBINATION PROGRAM.** In addition to the general requirements for graduation listed earlier in the catalog, a minimum of 50 credits in Economics must be earned in three years. First year of law will complete requirements for bachelor's degree with a major in economics. Students should take as many as possible of the following courses: History 21ab, 119, 127ab; Political Science 17ab, 134; Business Administration 11ab; Speech 20, 21.

### FOR UNDERGRADUATES

10. **CULTURAL ECONOMICS.** 1 Q. Winter. 5 cr. Open to all students. A study of (1) man and his environment, (2) institutional development of economic society, (3) nature and elements of modern capitalism, (4) selected economic problems, and (5) economics in relation to other sciences.

14ab. **PRINCIPLES OF ECONOMICS.** 2 Q. Autumn, winter, spring, summer. 4 cr. each quarter. Prerequisite, sophomore standing.

19. **WORLD RESOURCES AND INDUSTRIES.** 1 Q. Spring. 4 cr. Prerequisite, sophomore standing. A description and analysis of the world's resources with emphasis on the economic principles involved in their appraisal, exploitation, and functioning.

### FOR UNDERGRADUATES AND GRADUATES

101. **MONEY AND BANKING.** 1 Q. Autumn. Summer. 4 cr. Prerequisites, junior standing and Econ 14ab. A study of money and banking principles and institutions. Students having had Bus. Ad. 134 may not receive credit for this course. Students may not receive credit for this course and the identical Bus. Ad. 101.

102. **TRANSPORTATION.** 1 Q. Spring. 4 cr. Prerequisites, junior standing and Econ. 14ab. The principles of railway, ocean and waterway, motor truck and bus, and air transportation. Students may not receive credit for this course and the identical course Bus. Ad. 102.

103. **PUBLIC UTILITY ECONOMICS.** 1 Q. Autumn. 4 cr. Prerequisites, junior standing and Econ 14ab. Economics of utilities, history, regulation, rate making, public versus private power.

104. **PUBLIC FINANCE.** 1 Q. Winter. Summer. 4 cr. Prerequisites, junior standing and Econ. 14ab. Principles and problems of Federal financing. Students may not receive credit for this course and the identical course Bus. Ad. 104.

105. **STATE AND LOCAL TAXATION.** 1 Q. Spring. Summer. 4 cr. Prerequisites, junior standing and Econ. 14ab. A study of revenues and expenditures on state and local levels. Students may not receive credit for this course and the identical course Bus. Ad. 105.

107. **CONTEMPORARY ECONOMIC PROBLEMS.** 1 Q. Spring. 4 cr. Prerequisites, junior standing and Econ. 14ab. A study of current economic problems on the national and international levels.

**S108. CURRENT ECONOMIC PROBLEMS.** 1 Q. Summer. 3 cr. Prerequisites, junior standing and consent of instructor. A study of selected economic problems. Students who have received credit for 107 may not receive credit for this course.

**109. ECONOMICS OF CONSUMPTION.** 1 Q. Winter. Summer. 3 cr. Prerequisites, junior standing and Econ. 14ab. An analysis of the final stages of the economic progress. Students may not receive credit for this course and the identical course Bus. Ad. 109.

**110. AGRICULTURAL ECONOMICS.** 1 Q. Autumn. 4 cr. Prerequisites, junior standing and Econ. 14ab. Agricultural industry, supply of and demand for farm products, farm finance, taxation, agricultural policies.

**111. INTERMEDIATE ECONOMICS.** 1 Q. Winter. Summer. 4 cr. Prerequisites, junior standing and Econ. 14ab. Methods and concepts of economics, imperfect competition, cost and price analysis.

**112. DEVELOPMENT OF ECONOMIC THEORY.** 1 Q. Autumn. 4 cr. Prerequisites, junior standing and Econ. 14ab. A history and analysis of economic theories, emphasizing the trends of economic thought since the days of the Greeks and Romans.

**113ab. LABOR ECONOMICS.** 2 Q. Autumn, winter. Summer. 3 cr. each quarter. Students may enter either quarter. Prerequisites, junior standing and Econ. 14ab. (a) The origins, development, structure and function of the labor movement; (b) Ideologies and economic aspects of the labor movement; labor legislation.

**114. INDUSTRIAL RELATIONS.** 1 Q. Spring. 3 cr. Prerequisites, junior standing and Econ. 14ab, or consent of instructor for other than departmental majors. A study of the principles and problems that govern the relations of management and labor.

**115. ECONOMICS OF MONTANA.** 1 Q. Winter. Summer. 3 cr. Prerequisites, junior standing and Econ. 14ab. A study of the factors and forces that determine the economic well-being of the people of Montana.

**117. INTRODUCTION TO INTERNATIONAL ECONOMICS.** 1 Q. Autumn. 4 cr. Prerequisites, junior standing and Econ. 14ab. Theoretical analysis of problems in international economics followed by historical and institutional studies with emphasis upon foreign policy.

**118. SOCIAL SCIENCE METHODS.** 1 Q. Autumn. 4 cr. Prerequisites, junior standing and Econ. 14ab. An introduction to the methods used in the studies included in the Social Sciences.

**120. COMPARATIVE ECONOMIC SYSTEMS.** 1 Q. Spring. 4 cr. Prerequisites, junior standing and Econ. 14ab. A comparative study of the leading economic systems of the world.

**123. PRINCIPLES OF INSURANCE.** 1 Q. Autumn. 3 cr. Prerequisite, Econ. 14ab. An introductory course covering the nature of risk, basic insurance principles, and practices in the more important branches of the insurance business. Students may not receive credit for this course and the identical course Bus. Ad. 123.

**129. INDUSTRIAL ORGANIZATION AND MANAGEMENT.** 1 Q. Autumn. Winter. Summer. 4 cr. Prerequisites, junior standing and Econ. 14ab. An introductory survey of the principles of administration as applied to the organization and operation of manufacturing. It is the basic course in production management. It deals with such problems as: building and maintaining the internal organization; plant location and layout; materials procurement and handling; production planning and control; work simplification and methods of improvement; wage and salary administration and other human relations problems such as hiring, training, job evaluation and collective bargaining. Students may not receive credit for this course and the identical course Bus. Ad. 129.

**130. SOCIAL INSURANCE.** 1 Q. Spring. 3 cr. Prerequisites, junior standing and Econ. 14ab. Legal, economic and social aspects of the relation of these insurances to collective bargaining and industrial unrest. Students may not receive credit for this course and the identical course Bus. Ad. 130.

**133. CORPORATION FINANCE.** 1 Q. Autumn. Spring. 5 cr. Prerequisites, junior standing and Bus. Ad. 134. The position of corporate organization in modern business; the financial policy with reference to underwriting; the financial side of organization and promotion; capitalization; earnings; surplus; insolvency; receivership and reorganization. Problems and methods of social control. The financial organization of particular corporations. Students may not receive credit for this course and the identical course Bus. Ad. 133.

**151. MARKETING.** 1 Q. Autumn. Winter. Spring. Summer. 5 cr. Prerequisites, junior standing and Econ. 14ab. The prevailing methods of marketing as they apply to consumer goods, producer goods and raw mate-

rials. A study of marketing institutions, marketing functions, merchandising, price policies, and government regulations. Students may not receive credit for this course and the identical course Bus. Ad. 151.

152. FOREIGN TRADE. 1 Q. Spring. 4 cr. Prerequisite, Bus. Ad. 151. Theories, principles and methods of international trade. Economic resources and products of the principal countries, their chief exports and imports. Students may not receive credit for this course and the identical course Bus. Ad. 152.

155. MONETARY THEORY. 1 Q. Winter. 4 cr. Prerequisites, senior standing and Econ. 101, or consent of the instructor. A study of the relationship between money and credit and economic activity.

156ab. BUSINESS CYCLES AND BUSINESS FORECASTING. 2 Q. Winter, 4 cr.; Spring, 2 cr. Prerequisites, Bus. Ad. 134 or Economics 101 and senior standing. History, measurement, and analysis of fluctuations in business activity; factors influencing employment, production, prices and national income; problems of interpretation and forecasting; consideration of policies intended to stabilize business conditions. 156a is a prerequisite for 156b. Students may not receive credit for this course and the identical course Bus. Ad. 156ab.

161. WORLD ECONOMIC ORGANIZATIONS. 1 Q. Spring. 3 cr. Prerequisites, junior standing and Econ. 14ab, or consent of the instructor. Origin, organization, functions, problems, and future of international economic organizations.

180. ADVANCED ECONOMIC THEORY. 1 Q. Spring. 4 cr. Prerequisite, senior standing with 25 credits in economics, including Econ. 111. Advanced study of production, distribution, and price theories.

190. ADVANCED PROBLEMS. Any quarter. 1-2 cr. Prerequisites, senior standing and consent of instructor.

195. SEMINAR IN ECONOMICS. 1 Q. Any quarter. 1-2 cr. Prerequisites, 16 credits in economics, senior standing and consent of instructor. Maximum of six credits may be counted toward a major.

#### FOR GRADUATES

201. GRADUATE RESEARCH. Any quarter. Credit variable. Prerequisite, graduate standing.

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

## EDUCATION

Professors Linus J. Carleton (Dean), Andrew Halpin, Leo Smith, Herbert Wunderlich; Associate Professors James E. Short, Vernon Sletten, John F. Staehle; Assistant Professors James W. Gebhart, Henry Knapp, George H. Millis, Frank J. Watson.

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

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

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

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

All 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.

In order to register for student teaching, a student must have a C average in his teaching major, in his teaching minor, and in all courses in education.

**REQUIREMENTS FOR ADMISSION.** Pre-education students preparing for secondary teaching should consult with their advisors 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.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN EDUCATION.** In addition to the general requirements for graduation listed earlier in the catalog, 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 29 credits: Education 20, 23, 25, 26 (nine credits), 120, and 140 or their equivalents, and elective courses, totaling 11 credits, selected from other courses in Education.

**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 20, 22, 24abc, 28 (Minimum of 12 credits), and 120 or their equivalents, and elective courses, totaling 4 or more credits, selected from other courses in Education.

**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 below.)
3. Teaching area concentrations as prescribed by the State Department of Public Instruction and Montana State University. Subject matter area concentrations may include English, classical or modern languages, commercial work, journalism, mathematics, biological science, physical science, health and physical education, history and political science, economics and sociology, home economics, art, music, and speech, or such combinations of these as may be prescribed.

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

1. A Bachelor's degree from Montana State University or other approved institution of higher education showing that the holder has completed a four (4) 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 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. 26 or 28) will be assigned definite quarters in which he must register for that course.

**SEQUENCE OF CERTIFICATION COURSES IN EDUCATION.** The courses required for teaching certificates should be taken both by Education majors and by non-majors in the following sequence:

**PREPARATION FOR SECONDARY TEACHING.**

Freshman or

Sophomore year: Psych. 11 (not counted among the 24 credits required for secondary certification).

Sophomore or

Junior year: Educ. 20, 4 credits; Educ. 23, 4 credits.

Junior year: Educ. 25, 5 credits.

Senior year: Educ. 26, a minimum of 5 credits is required.

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. Educ. 120, Educ. 140, or a second quarter of Educ. 26 is recommended.

Students seeking a degree in the School of Education will observe the additional requirements for the undergraduate degree in Education as listed previously.

#### PREPARATION FOR ELEMENTARY TEACHING.

Freshman or

Sophomore year: Psychology 11 and 13, while not counted in Education, should precede Educ. 20.

Sophomore year: Educ. 20, 4 credits; Educ. 22, 5 credits.

Junior year: Educ. 24abc, 12 credits.

Senior year: Educ. 28, 12 credits (minimum); Educ. 120, 3 credits.

In addition the student will complete specific requirements as follows: English 59abc, 3 credits; Art 103ab; General 13abc (10 credits), 15abc (10 credits), 25, 42abc, 100; History 21abc; Mathematics 130; Music 22ab; Physical Education 32, 137, 153; Political Science 14, 17a, 17b, 4-5 credits; Psychology 11, 13.

For elementary teachers, Group I requirements may be satisfied by two quarters of General 13abc and one quarter of Physical Science for teachers.

For elementary teachers, Group III requirements may be satisfied by two quarters of General 15abc and one quarter of literature.

In addition to the 36 credits of Education courses listed above for students seeking an elementary certificate, the student must take at least 4 credits of electives to make up the required total of 40 credits.

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.

#### FOR UNDERGRADUATES

20. INTRODUCTION TO EDUCATION. 1 Q. Autumn. Winter. Spring. Summer. 4 cr. Prerequisites, sophomore standing and Psychology 11. An over-view of the American public school and its purposes. The development, structure, support, and control of schools locally and nationally. Analysis of problems, issues, and trends in education today. Study of teaching as a profession.

22. THE ELEMENTARY SCHOOL CHILD. 1 Q. Spring. 5 cr. Summer. 4 cr. Prerequisites, sophomores standing, Education 20 and Psychology 13. Further study of child growth and development as it applies to the child in the elementary school. The physical and social aspects of child development. The psychological foundations of learning, individual differences, and mental hygiene. A minimum of 2 hours per week will be spent in observation of children in the school environment.

23. EDUCATIONAL PSYCHOLOGY. 1 Q. Autumn. Winter. Spring. Summer. 4 cr. Prerequisites, sophomore standing, Psychology 11, and Education 20. A required course for students working toward secondary certification. Emphasis on psychological foundations of learning, individual differences, and mental hygiene. Applications to the adolescent in the junior and senior high school.

24abc. THE CHILD AND THE CURRICULUM. 3 Q. Autumn, winter, spring. Summer. 4 cr. each quarter. Prerequisites, junior standing and Education 22. (a) The language background of reading, reading readiness, psychology of the reading process, reading skills, and related diagnostic and remedial measures. The materials and teaching procedures in oral and written communication, spelling, and handwriting. (b) The place and function of arithmetic and science in the elementary school curriculum. Type of instruction, criteria for selection, placement, and organization of content in these areas. (c) 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.

25. SECONDARY SCHOOL TEACHING PROCEDURES. 1 Q. Autumn. Winter. Spring. Summer. 5 cr. Prerequisites, junior standing and Education 20 and 23. Methods of planning, presentation, appraisal, discipline, and use of supplementary materials generally applied in instruction in the high school classroom. Emphasis on demonstrations, observation, and other activities for student participation.

26. STUDENT TEACHING: SECONDARY. 1 Q. Autumn. Winter.\* Spring. Summer. Credit variable. Prerequisite, senior standing, Education 25 or equivalent and consent of Director of Student Teaching. A minimum of five credits is required for secondary certification; nine credits are required for the B.A. in Education. Student Teaching may be elected for

one or more quarters, but the total may not exceed 16 credits. Course includes: observation of classroom teaching; teaching under supervision of critic teachers and staff of the School of Education in cooperating public schools in Western Montana; and weekly meetings with the University Supervisor.

28. STUDENT TEACHING: ELEMENTARY. 1 Q. Autumn. Winter. Spring. Summer. Credit variable. Prerequisites, junior standing, Education 24abc and consent of Director of Student Teaching. Twelve credits of student teaching are required of students seeking elementary certification. Ordinarily, the student will be expected to take 4 credits of student teaching in his junior year and 8 credits in his senior year. Additional credit in student teaching may be earned but the total may not exceed 16 credits. Course includes observation and teaching in cooperating schools in Western Montana under the supervision of a critic teacher and a staff member of the School of Education. Students will meet weekly with the University Supervisor.

#### FOR UNDERGRADUATES AND GRADUATES

101. CHILDREN'S LITERATURE. 1 Q. Spring. Summer. 3 cr. Prerequisite, junior standing. A critical survey of children's literature. Careful study of some selections with reference to their value for children in grades 1 to 8.

110. SAFETY EDUCATION AND DRIVER TRAINING. 1 Q. Spring. Summer. 3 cr. Prerequisites, senior standing and consent of instructor. Designed to prepare teachers for Safety Education and Driver Training courses in high schools. Supervised experience in teaching driving, and theoretical aspects of driver education. Emphasis on general safety education. Offered in cooperation with the American Automobile Association and the Montana Highway Patrol.

S111. AVIATION EDUCATION. 1 Q. Summer. 1-2 cr. Prerequisites, junior standing and consent of instructor. The Air Age and its impact on society and the school. Lectures by resource personnel drawn from federal, state, and local air groups; discussions; study of books, pamphlets, periodicals, audio-visual aids dealing with aviation education; field work including flight experience. Sponsored jointly by the Montana Aeronautics Commission, the State Department of Public Instruction, and the School of Education.

117. METHODS OF TEACHING SECONDARY SCIENCE. 1 Q. Winter. Summer. 3 cr. Prerequisites, junior standing, 12 credits in secondary education, and a minor in one of the science fields. Systematic analysis of problems involved in development of an adequate high school science program; curriculum, methods, instructional materials, laboratory procedures.

118. TEACHING OF CONSERVATION. 1 Q. Spring. Summer. 3 cr. Prerequisites, junior standing, 12 credits in Education or teaching experience, General 100 or concurrent registration therein, consent of instructor. This course will be offered as an integral part of the Conservation Workshop. It will be handled as a workshop with general committee sessions and individual projects. Current conservation programs and materials will be analyzed. Development of materials for use in teaching conservation in Montana elementary and secondary schools.

119. MENTAL HEALTH IN THE CLASSROOM. 1 Q. Any quarter. 4 cr. Prerequisites, Psychology 116; or Education 23, 140, and 152; or extensive teaching experience; consent of instructor. Offered by extension only. This course is designed for in-service training of classroom teachers. Whenever possible, it will be given by the staff of one of the State Mental Hygiene Clinics. Students may not receive credit for this course and the identical course Psychology 119.

120. THE TEACHER AND SCHOOL ORGANIZATION. 1 Q. Winter. Spring. Summer. 3 cr. Prerequisites, Education 26 or 28, teaching experience, or consent of instructor. 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.

S121. SUPERVISION AND TEACHING OF THE LANGUAGE ARTS. 1 Q. Summer. 3 cr. Prerequisites, junior standing, teaching experience, consent of instructor. Analysis of current problems, trends, and research findings pertinent to the development of an effective language arts program in grades 1-8. Will deal primarily with oral and written composition, spelling, and handwriting. Not a course in teaching of reading or literature.

S122. PROBLEMS IN CONSERVATION EDUCATION. 1 Q. Summer. May be taken for 3 credits if taken concurrently with Education S118, or for 6 credits if Education S118 and General 100 or equivalents have been



taken. Prerequisites, junior standing, General 100, and Education S118 or concurrent registration therein, consent of instructor. Students will design, select, and evaluate materials for the teaching of conservation education or they may work out individual projects.

S125. ADVANCED SAFETY EDUCATION AND DRIVER TRAINING. 1 Q. Summer. 2 cr. Prerequisite, a basic course in driver training or experience in teaching driver training. Designed as a second level course for students who have had experience in this field. Emphasis on general safety education. Offered in cooperation with the American Automobile Association and the Montana Highway Patrol.

140. GUIDANCE IN THE ELEMENTARY AND SECONDARY SCHOOL. 1 Q. Autumn. Winter. Spring. Summer. 4 cr. Prerequisites, junior standing, Education 24abc or 25, or teaching experience. Orientation to organization and administration of guidance programs in elementary and secondary schools.

141. ORGANIZATION AND ADMINISTRATION OF THE SCHOOL LIBRARY. 1 Q. Autumn. Summer. 3 cr. Prerequisite, junior standing. Designed for part time teacher-librarians without library training. Objectives of school library service, simple library routines and procedures, integration of library and instruction, library quarters, equipment, and costs.

145. AUDIO-VISUAL AIDS. 1 Q. Autumn. Winter. Summer. 3 cr. Prerequisite, junior standing. A practical course in effective instructional use of a wide variety of aids—pictures, exhibits, strip films, slides, motion pictures, etc. Will familiarize teachers with the actual operation of film projectors and other similar equipment. Primary emphasis will be placed on classroom use rather than the technical aspects of the subject.

148. PROBLEMS IN SPECIAL EDUCATION. 1 Q. Winter. Summer. 3 cr. Prerequisites, junior standing, 12 credits in Education, consent of instructor. Diagnostic and remedial techniques and specialized procedures in teaching the handicapped and slow learner; some attention given to the accelerated learner.

152. EDUCATIONAL MEASUREMENT. 1 Q. Autumn. Winter. Spring. Summer. 4 cr. Prerequisites, junior standing, 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.

154. SEMINAR. Any quarter. Credit variable. Prerequisites, senior standing, 12 credits in Education, consent of instructor. This course may be elected for 2 or more quarters for a total of not more than 10 credits. Group analysis and discussion of individual projects. Application to specific teaching situations where possible.

155. REMEDIAL READING. 1 Q. Spring. Summer. 3 cr. Prerequisites, junior standing, a basic course in the teaching of reading or teaching experience, consent of instructor. Diagnosis and treatment of reading difficulties in elementary and secondary grades. Techniques and materials designed for classroom teachers, remedial specialists, and for principals who wish to set up a remedial program.

158. EDUCATIONAL SOCIOLOGY. 1 Q. Autumn. Summer. 3 cr. Prerequisite, junior standing. The role of 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.

159. THE JUNIOR HIGH SCHOOL. 1 Q. Spring. Summer. 4 cr. Prerequisites, senior standing and 12 credits in Education. Objectives, organization, class scheduling, curriculum, and extra-curricular activities of the junior high school.

S161. CURRICULUM WORKSHOP. 1 Q. Summer. Credit variable to a maximum of 8. Prerequisites, senior standing and teaching experience, consent of instructor. Not more than 10 credits earned in this workshop may be applied to an undergraduate or graduate degree.

S164. SUPERVISION OF INSTRUCTION IN THE ELEMENTARY SCHOOL. 1 Q. Summer. 2-4 credits. Prerequisites, senior standing and teaching experience. Supervisory problems of the elementary school principal, professional stimulation of staff, clarification of objectives, curriculum planning, unit teaching, evaluation of outcomes, use of community resources in the elementary school.

166ab. HISTORICAL FOUNDATIONS OF AMERICAN EDUCATION. 2 Q. Winter, spring. Summer. 3 cr. each quarter. Prerequisite, senior standing. Students may enter either quarter. Historical and philosophical backgrounds of present-day problems in education. (a) to 1650. (b) 1650 to present time.

167. OCCUPATIONAL INFORMATION. 1 Q. Winter. Summer. 3 cr. Prerequisite, Education 140 or equivalent. Sources, including job analysis and surveys; occupational trends, classification, filing systems. Evaluation, selection, and use of occupational information.

168. TECHNIQUES OF COUNSELING. 1 Q. Winter. 4 cr. Summer. 2-4 cr. Prerequisites, Education 140 and 152, consent of instructor. Study and use of the more common counselor tools. Records, placement and follow-up, tests and inventories, check lists, interviewing, and use of referral sources.

173. METHODS OF TEACHING SOCIAL STUDIES IN SECONDARY SCHOOLS. 1 Q. Winter. Summer. 3 cr. Prerequisites, junior standing and 12 credits in Education. Systematic analysis of problems involved in the teaching of the social studies in junior and senior high schools: curriculum planning, development and presentation of units of instruction, selection and use of materials.

S175. SUPERVISION AND TEACHING OF ARITHMETIC. 1 Q. Summer. 3 cr. Prerequisites, junior standing and teaching experience. Analysis of curriculum trends, instructional materials, research, and supervisory techniques relevant to a modern elementary school arithmetic program.

S176. SUPERVISION AND TEACHING OF SOCIAL STUDIES IN THE ELEMENTARY SCHOOL. 1 Q. Summer. 3 cr. Prerequisites, junior standing and teaching experience. Study of modern philosophy of social studies instruction in grades 1-6 with emphasis on curriculum trends, instructional practices, teacher pupil planning and evaluation, unit organization of instruction, integration with other areas, and use of community resources.

178. SUPERVISION AND TEACHING OF ELEMENTARY READING. 1 Q. Winter. Summer. 4 cr. Prerequisites, junior standing and teaching experience. Intensive analysis of the characteristics of a good reading program in grades 1-6: objectives, methods and materials of instruction, evaluation, relationship to other work. Supervisory techniques applied specifically to the improvement of reading instruction.

S179. SUPERVISION AND TEACHING OF SCIENCE IN THE ELEMENTARY SCHOOL. 1 Q. Summer. 3 cr. Prerequisites, junior standing, teaching experience, consent of instructor. Problems of curriculum planning, grade placement of content, selection of suitable instructional materials, and use of effective techniques in the science program in the elementary school. Will deal primarily with work in grades 4-8.

S180. TEACHING THE USE OF BOOKS AND LIBRARIES. 1 Q. Summer. 3 cr. Prerequisite, junior standing. Methods of teaching the use of books and libraries in schools, including practice in the use of library materials commonly found in school libraries. Preparation of units for teaching about books and libraries.

181. SCHOOL LIBRARY CLASSIFICATION AND CATALOGING. 1 Q. Winter. Summer. 3 cr. Prerequisites, Education 141 or equivalent, consent of instructor. Principles of classification and cataloging for school librarians. Practice in working with materials commonly found in school libraries.

182. SCHOOL LIBRARY REFERENCE MATERIALS. 1 Q. Winter. Summer. 3 cr. Prerequisites, Education 141 or equivalent, consent of instructor. Study and practice in use of basic reference books and bibliographies commonly found in school libraries, with special attention to reference methods, citation, and bibliographic form.

S184. EVALUATION OF SCHOOL LIBRARY SERVICES AND MATERIALS. 1 Q. Summer. 2 cr. Prerequisite, 12 credits of library science. An advanced course in methods of evaluating and improving school library services to teachers and students.

185. BOOK SELECTION FOR SCHOOL LIBRARIES. 1 Q. Spring. Summer. 3 cr. Prerequisites, Education 141, consent of instructor. Principles and practice of book selection for school libraries. The reading interests of school children. Development of book lists and bibliographies for children and young people. Examination and study of children's books.

S187. ADVANCED WORKSHOP IN LIBRARY SCIENCE. 2 weeks. 1-3 cr. Prerequisite, 9 hours credit in library science. A special workshop to deal at an advanced level with the problems of the school librarian. In addition to general sessions and committee work, individual students will be given opportunity to work on problems of special interest to them.

188. COUNSELING PRACTICE. 1 Q. Spring. Summer. 2-4 cr. Prerequisites, Education 168 or equivalent, consent of instructor. Qualified students will be given counseling and testing experience in neighboring Montana public schools. Case work under supervision. Weekly seminar discussion.

190. INDEPENDENT STUDY. 1 Q. Any quarter. Credit variable. Prerequisites, senior standing and consent of advisor and instructor. Independent reading on selected topics under the guidance of a staff member. Term paper may be required. May be elected for two or more quarters for a total of not more than 10 credits.

S191. LIBRARY QUARTERS AND EQUIPMENT. 1 Q. Summer. 2 cr. Prerequisite, 12 credits in library science or administrative experience. The practical aspects of planning school library quarters based on accepted standards. Planning library quarters in the new school and adapting existing buildings to provide library service. Equipping the school library.

S192. SELECTION AND PROCESSING OF NON-BOOK LIBRARY MATERIALS. 1 Q. Summer. 3 cr. Prerequisite, 12 credits in library science. Selection and cataloging of various non-book materials; pamphlets, pictures, periodicals, newspapers, maps, and audio-visual materials. Sources of such materials, and their place in the library program.

S193. SPECIAL SERVICES OF THE ELEMENTARY SCHOOL LIBRARY. 1 Q. Summer. 3 cr. Prerequisites, Education 141 and a course in children's literature. Special aspects of elementary school library work.

S195. REMEDIAL READING LABORATORY. 1 Q. Summer. 5 cr. Prerequisites, senior standing, Education 155, consent of instructor. Supervised application of the principles of diagnostic and remedial reading techniques from first grade through high school levels. In addition to class meetings, each student will work with an assigned child one hour daily.

#### FOR GRADUATES

201. RESEARCH. Any quarter. Credit variable to maximum of 15. Prerequisites, graduate standing in Education, consent of instructor.

222. SECONDARY SCHOOL ADMINISTRATION. 1 Q. Winter. Summer. 3 cr. Prerequisites, graduate standing in Education and teaching experience. Problems involved in the administration of the American high school; definition of tasks, organization of staff, scheduling of classes, enrollment process, handling of supplies, management of extra-curricular activities, records and reports, teacher participation in administration, etc.; analysis of research and experience.

224. SCHOOL SUPERVISION. 1 Q. Spring. Summer. 4 cr. Prerequisites, graduate standing in Education and teaching experience. Roles and responsibilities of assigned leaders for improving instruction and promoting in-service growth of personnel.

250. EDUCATIONAL ADMINISTRATION. 1 Q. Autumn. Summer. 4 cr. Prerequisites, graduate standing in Education and teaching experience. Administrative relationships at federal, state, and local levels; organization of local Boards of Education; responsibilities of county and district school superintendents.

S251. PLANNING THE SCHOOL BUILDING PROGRAM. 1 Q. Summer. 2-4 cr. Prerequisites, graduate standing, Education 250 or equivalent, consent of instructor. Procedures in determining building needs, selecting a site, planning the building, passing a bond issue, and carrying a building program through to completion.

S253. PERSONNEL ADMINISTRATION. 1 Q. Summer. 3 cr. Prerequisites, graduate standing, Education 250, administrative experience, consent of instructor. Problems related to teaching and other personnel (not student) in elementary and secondary education: selection, in-service training, assignment, promotion, tenure, welfare, and supervision.

254. SEMINAR. Any quarter. Credit variable. Prerequisites, graduate standing, consent of instructor. May be elected for two or more quarters for a total of not more than 10 credits. Group analysis of problems in specific areas of education.

256. SCHOOL FINANCE. 1 Q. Spring. Summer. 3 cr. Prerequisite, graduate standing in Education and teaching experience. Sources of school revenues; related costs, inequalities, legal limitations, and proper expenditures; relationship of foundation programs and district reorganization.

260. ELEMENTARY SCHOOL ADMINISTRATION. 1 Q. Winter. Summer. 3 cr. Prerequisites, graduate standing in Education and teaching experience. Administrative problems of the elementary school principal: organization of staff; grouping of pupils; office routine; pupil guidance and adjustment; utilization of buildings, supplies, custodial service; marking, promotion, and reports to parents; community relationships.

265. ADVANCED EDUCATIONAL PSYCHOLOGY. 1 Q. Winter. Summer. 3 cr. Prerequisite, graduate standing in Education. Growth and development of children and youth, intelligence and special aptitudes, appraisal and diagnosis of mental development, learning process, personality adjustment. A systematic analysis of the field of educational psychology at the graduate level.

271. ELEMENTARY CURRICULUM. 1 Q. Autumn. Summer. 4 cr. Prerequisites, graduate standing and teaching experience. Survey of elementary school curriculum; major trends in course content, grade placement, organization of materials, and evaluation of outcomes. Of particular value to the school administrator without formal course background in elementary education.

272. PHILOSOPHY OF EDUCATION. 1 Q. Autumn. Summer. 3 cr. Prerequisite, graduate standing in Education. Analysis of leading philosophical points of view in Education; concepts of the individual, society, the educative process, and the role of education in American democracy.

277. SECONDARY CURRICULUM. 1 Q. Spring. Summer. 4 cr. Prerequisites, graduate standing and teaching experience. Survey of secondary school curriculum; organization of materials; administration, evaluation, and trends in curriculum development.

S278. SOCIOLOGICAL FOUNDATIONS OF EDUCATION. 1 Q. Summer. 3 cr. Prerequisites, Education 158 or 272 or their equivalent, graduate standing, consent of instructor. Designed to trace in some detail the background of education in its broadest sense as found in religion, the economic system, the family, the estate, and other social institutions.

S280. SEMINAR IN ADMINISTRATIVE PROBLEMS. 1 Q. Summer. 3 cr. Prerequisites, graduate standing, administrative experience, consent of instructor. Registration limited to 25. An inter-disciplinary approach to school administration as it functions in school and community. Staff members from the departments of Sociology, Economics, Anthropology, and Political Science will cooperate with a staff member from Education in bringing their various disciplines to focus on school administration. Staff presentations followed by group discussions. Assigned readings in various fields.

285. METHODS OF EDUCATIONAL RESEARCH. 1 Q. Autumn. Winter. Spring. Summer. 4 cr. Prerequisite, graduate standing in Education. Research problems: their statement, organization, techniques, tabulation of materials. Mathematical concepts necessary for interpretation of research data and conclusions. Required for a Master's degree in Education. Candidates are urged to take this course in the first quarter of their graduate program.

290. INDEPENDENT STUDY. 1 Q. Any quarter. Credit variable. Prerequisites, graduate standing and consent of advisor and instructor. Independent reading on selected topics under the guidance of a staff member. Term paper may be required. May be elected for two or more quarters for a total of not more than 10 credits.

299. THESIS OR PROFESSIONAL WRITING. Any quarter. Credit variable. Maximum credit allowable 15.

### 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 provided they are registered for as Education, e.g., a student desiring Education credit for H. & P.E. 153 must register for Education 153, not for H. & P.E. 153. Descriptions of these courses may be found under the Department or School which teaches the course.

ART.	107.	METHODS OF TEACHING SECONDARY ART
BUS. AD.	32.	METHODS OF TEACHING BUSINESS SUBJECTS
BUS. AD.	S139.	PROBLEMS IN TEACHING BOOKKEEPING
BUS. AD.	S142.	PROBLEMS IN TEACHING GREGG SHORTHAND
BUS. AD.	S149.	UNIT COURSES IN BUSINESS EDUCATION
ENG.	105.	METHODS OF TEACHING ENGLISH
FOR. LANG.	102.	METHODS OF TEACHING FOREIGN LANGUAGE
H. & P.E.	135.	METHODS OF TEACHING PHYSICAL EDUCATION
H. & P.E.	153.	HEALTH EDUCATION
HOME EC.	163.	METHODS OF TEACHING HOME ECONOMICS
HOME EC.	183.	ADVANCED PROBLEMS IN TEACHING HOME ECONOMICS
JOURN.	126.	SCHOOL PUBLICATIONS
MATH.	131.	ALGEBRA FOR TEACHERS
MATH.	132.	GEOMETRY FOR TEACHERS
MUSIC.	123abc.	SCHOOL MUSIC

### COURSE REQUIREMENTS 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 catalog was printed, complete a minimum of 45 credits in a major teaching field and a minimum of 30 credits in a minor teaching field. In case the patterns of teaching majors and minors are changed by the State Department of Public Instruction subsequent to the issuance of this catalog, 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 a 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.

#### ART

	Teaching Major (45 credits) 38 credits as follows:	Teaching Minor (30 credits) 27 credits as follows:
<b>REQUIRED COURSES:</b>		
Art 23 Drawing .....	6	6
Art 25ab Color and Design .....	6	6
Art 31abc History of Art .....	9	6
Art 35 Sculpture .....	3	3
Art 37 Mediums, or 27 Elementary Crafts..	3	3
Art 40 Painting .....	6	
Art 51 Life Drawing .....	2	
Art 107 Methods of Teaching Secondary Art	3	3
	7 credits from the following:	3 credits from the following:
<b>ELECTIVES:</b>		
Art 35 Sculpture .....	3	3
Art 39 Watercolor .....	3	3
Art 40 Painting .....	3	3
Art 51 Life Drawing .....	1-2	1-2
Art 125 Advanced Design .....	1-3	1-3
Art 140 Advanced Painting .....	1-3	1-3

#### BUSINESS ADMINISTRATION

	Teaching Major (45 credits) 36 credits as follows:	Teaching Minor (31 credits) 31 credits as follows:
<b>REQUIRED COURSES:</b>		
Bus.Ad. 22abc Stenography .....	15	15
Bus.Ad. 128 Gregg Shorthand Theory .....	2	2
Bus.Ad. 11ab Elementary Accounting .....	10	10
Bus.Ad. 21 Adv. Typewriting .....	2	2
Bus.Ad. 25 Office Machines .....	2	
Bus.Ad. 26 Beg. Secretarial Practice .....	2	2
Bus.Ad. 27 Filing .....	3	
	9 credits from the following:	
<b>ELECTIVES:</b>		
Bus.Ad. 32 Methods of Teaching Bus. Subjects .....	4	
Bus.Ad. 105 Office Management .....	3	
Bus.Ad. 129 Industrial Org. and Management .....	4	
Bus.Ad. 123 Principles of Insurance .....	4	
Bus.Ad. 134 Financial Organization .....	5	
Bus.Ad. 141ab Business Law .....	6	
Bus.Ad. 151 Marketing .....	5	
Econ. 14ab Principles of Economics .....	8	

ENGLISH

REQUIRED COURSES:		Teaching Major (60 credits) 39-41 credits as follows:	Teaching Minor (30-32 credits) 30-32 credits as follows:
Eng. 59abc	Introduction to Major American Writers .....	9	9
Eng. 58abc	Introduction to Major British Writers .....	9	9
Eng. 157b or c	Shakespeare .....	3	3
Eng. 30a	Adv. Composition .....	3	3
Eng. 30b or c	Adv. Composition .....	3	3
Eng. 187b	The English Language .....	3	
Sp. 20	Fundamentals of Speech or Sp. 69, Oral Interpretation.....	3-5	3-5
Journ. 126	School Publications or Dr. 30, Intro. to the Theatre .....	3	
Eng. 150	Lit. for High School Teachers....	3	3

ELECTIVES: 19-21 credits

The student must elect at least one course from each of the three groups below. He may then choose the remaining electives from any of the courses in the department of English or from any of the courses in the groups below for which he has the prerequisites.

- Group I. Speech: 21, 40, 46abc, 48, 121, 169; Drama: 20, 30, 40, 41, 50, 110, 125, 126; Journalism: 17, 21ab, 30, 126, 140a, 143; English: 17, 103abc, 177c, 160.
- Group II. American Literature: 104c, 177c, 162abc, 169abc, 192.
- Group III. British Literature: 104ab, 177ab, 157abc, 165abc, 169abc, 171abc, 174abc, 192.

FOREIGN LANGUAGES\*

Modern Languages (French or Spanish)		Teaching Major (45 credits or equivalent) 32 credits as follows:	Teaching Minor (30 credits or equivalent) 30 credits as follows:
11abc	Elementary .....	15	15
13	Intermediate .....	4	4
15	Advanced .....	4	4
17	Review of Grammar and Composition....	3	3
103abc	Survey of Literature .....	6	4

ELECTIVES:

Any courses numbered 100 or above ..... 13

Classical Languages (Latin)

REQUIRED COURSES:		Teaching Major (45 credits or equivalent) 29 credits as follows:	Teaching Minor (30 credits or equivalent) 26 credits as follows:
11abc	Elementary .....	15	15
13	Intermediate .....	5	5
15	Advanced .....	4	4
17	Latin Readings .....	5	2

ELECTIVES:

125 Seminar ..... 16 5

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

## HEALTH AND PHYSICAL EDUCATION FOR MEN

	Teaching Major (45 credits) 39 credits as follows:	Teaching Minor (30 credits) 27 credits as follows:
<b>REQUIRED COURSES:</b>		
H. & P. E. 19	Intro. to Physical Educ. ....	3
H. & P. E. 32	First Aid .....	2
H. & P. E. 40	Care and Prev. of Athletic Injuries .....	2
H. & P. E. 45c	Dance Methods and Materials	2
H. & P. E. 60, 61ab, 62	Coaching—Basketball, Track, Football .....	8
H. & P. E. 70	Teaching Physical Education ..	2
H. & P. E. 121	Applied Anatomy .....	5
H. & P. E. 137	Programs in Phys. Educ. ....	4
H. & P. E. 150	Organization and Adminis- tration .....	4
H. & P. E. 153	Health Education .....	4
H. & P. E. 165	Introduction to Testing .....	3
<b>ELECTIVES:</b>		
	Other courses in the department .....	6

- NOTES: 1. Majors and Minors substitute H. & P. E. 15abc and 16abc for courses H. & P. E. 11abc, 12abc required of other lower division students.
2. H. & P. E. 135—Methods of Teaching Physical Education is required of all majors and minors.
3. In the coaching courses (59, 60, 61, 62) a total of not more than 10 credits may be applied to the major and not more than 8 credits applied to the minor.
4. Students planning to major or minor in this field must report to the Department Chairman by the first quarter of the junior year.

## HEALTH AND PHYSICAL EDUCATION FOR WOMEN

	Teaching Major (45 credits) 40-42 credits as follows:	Teaching Minor (30 credits) 27 credits as follows:
<b>REQUIRED COURSES:</b>		
H. & P.E. 19	Intro. to Physical Educ. ....	3
H. & P.E. 32	First Aid .....	2
H. & P. E. 45abc	Dance Methods and Materials	6
H. & P. E. 63abc	Teaching of Sports for Women	6
H. & P.E. 70	Teaching Physical Education..	2
H. & P.E. 121	Applied Anatomy .....	5
H. & P.E. 137	Programs in Physical Education .....	4
H. & P.E. 150	Organization and Administration .....	4
H. & P.E. 153	Health Education .....	4
H. & P.E. 160	Seminar .....	1-3
H. & P.E. 165	Introduction to Testing .....	3
<b>ELECTIVES:</b>		
	Other courses in the Department.....	3-5 cr.

- NOTES: 1. Majors and Minors substitute H. & P. E. 15abc and 16abc for courses H. & P. E. 11abc, 12abc required of other lower division students.
2. H. & P. E. 135—Methods of Teaching Physical Education is required of all majors and minors.
3. Students planning to major or minor in this field must report to the Department Chairman by the first quarter of the junior year.

## HOME ECONOMICS

	Teaching Major (45 credits) 35 credits as follows:	Teaching Minor (30 credits) 18 credits as follows:
<b>REQUIRED COURSES:</b>		
Home Ec. 17abc	Introduction to Home Ec... ..	15
Home Ec. 82	Textiles .....	4
Home Ec. 119	House Planning and Furnishing .....	5
Home Ec. 122 or 24	Nutrition .....	5
Home Ec. 124	Child Development .....	3
Home Ec. 129	Problems in Family Living	3

ELECTIVES: To be selected with the		10 credits	12 credits from
advice of the Home		from	either the re-
Economics Department		the following:	quired groups or
Home Ec. 18	Clothing Design .....	4	the following:
Home Ec. 80	Problems in Home		
	Equipment .....	4	4
Home Ec. 120	Clothing .....	5	5
Home Ec. 127	Home Living Center .....	5	5
Home Ec. 128	Home Management .....	2	2
Home Ec. 138	Experimental Foods .....	4	4
Home Ec. 198	Problems in Home		
	Economics .....	2-5	2-5

JOURNALISM (Minor only)

REQUIRED COURSES:		Teaching Minor
		(30 credits)
Journalism 17	Elementary Photography .....	3
Journalism 21ab	Reporting .....	6
Journalism 30	Copy Reading .....	3
Journalism 140a	Principles of Advertising .....	3
Journalism 143	Advertising Layout and Copy .....	3
Journalism 49abc	History of Journalism .....	6
Journalism 126	School Publications .....	3
Radio 1	Introduction to Radio .....	2
Journalism 36	Current Events .....	1

LIBRARY SCIENCE (Minor Only)\*

REQUIRED COURSES:		23 credits
		as follows:
Ed. 141	Org. and Admin. of the School Library .....	3
Ed. S180	Teach. the Use of Books and Libraries.....	3
Ed. 181	School Library Classif. and Cataloging .....	3
Ed. 182	School Lib. Reference Materials .....	3
Ed. S184	Evaluation of School Lib. Services and Materials...	2
Ed. 185	Book Selection for School Libraries.....	3
Ed. 145	Audio-Visual Aids .....	3
Eng. 150	Lit. for the High School Teacher .....	3
ELECTIVES:		8 credits from
		the following:
Ed. S191	Library Quarters and Equipment .....	2
Ed. S192	Selection and Processing of Non-Book Lib. Materials	3
Ed. S193	Special Services of the Elem. Sch. Library.....	3
Ed. 101	Children's Literature .....	3

\*Most courses offered Summer Quarter only.

MATHEMATICS

		Teaching Major	Teaching Minor
		(45 credits)	(30 credits)
		30 credits	25 credits
REQUIRED COURSES:		as follows:	as follows:
Math. 10	Intermediate Algebra .....	5*	5*
Math. 13	Trigonometry .....	5*	5*
Math. 16	College Algebra .....	5*	5*
Math. 21	Analytic Geometry .....	5	5
Math. 22	Calculus I .....	5	5
Math. 23	Calculus II .....	5	
SPECIAL ELECTIVES: (At least one of the following courses)			
Math. 110a	Introduction to Abstract		
	Mathematics .....	3	3
Math. 131	Algebra for Teachers .....	5	5
Math. 132	Geometry for Teachers .....	5	5

OTHER ELECTIVES: Additional courses in mathematics may be selected to complete the 45 credits for the teaching major.

\*or satisfactory performance on a placement examination in mathematics. A teaching major may be defined briefly as follows: completion of Calculus I, plus 15 additional credits including at least one of the special electives. A teaching minor may be defined as follows: completion of Calculus I, plus five or more additional credits, including at least one of the special electives.



## MUSIC

	Teaching Major (45 credits) 17-18 credits as follows:	Teaching Minor (30 credits) 17-18 credits as follows:
<b>REQUIRED COURSES:</b>		
11a Theory I .....	3	3
11b Theory I .....	3	3
31a Conducting .....	3	3
35abc (any one quarter) List. to Music.....	2-3	2-3
123b or c School Music .....	3	3
Applied Music .....	3	3
	12-13 credits from the following:	12-13 credits from the following:
11c Theory I .....	3	3
1 Voice in Class (max. 2 qtrs.).....	2	2
14a, 14b, or 14c, Piano in Class (max. 2 qtrs.)..	2	2
25 String Instruments in Class .....	2	2
29 Wind Instruments in Class .....	2	2
31b or c Conducting .....	3	3
123b or c School Music .....	3	3
Applied Music .....	3	3

For the Teaching Major, courses approved by the School of Music should be added to bring the total to 45 credits.

## SCIENCE

## BIOLOGICAL SCIENCE

	Teaching Major (49-50 credits)	Teaching Minor (31-32 credits)
<b>REQUIRED COURSES:</b>		
Bot. 11ab General Botany .....	10	10
Bot. 12 or S61 Class. of Spring Flora, or Classification of Summer Flora..	3-4	3-4
Zool. 10 General Zoology .....	5	5
Zool. 11 General Zoology .....	5	5
Zool. 15 Field Zoology .....	3	3
Zool. 23 Comparative Vertebrate Zoology .....	5	5
Zool. 24 Human Physiology .....	5	5
Bot. 22 or 141 Plant Phys. or Morph. of the Thallophytes .....	5	5
Bact. 19 Elementary Bacteriology .....	5	5
Gen. 100 Conservation of Natural and Human Resources .....	3	

## PHYSICAL SCIENCE

	Teaching Major (45 credits)	Teaching Minor (30 credits)
<b>REQUIRED COURSES:</b>		
Chem. 11abc or 13abc General Chemistry or Inorganic Chem. and Qual. Analysis .....	15	15
Physics 11abc or 20abc General Physics .....	15	15
<b>ELECTIVES:</b> Selected from advanced courses in chemistry and/or courses over 100 in Physics .....	15	

## GENERAL SCIENCE (Minor Only)

	(40-50 credits)
<b>REQUIRED COURSES</b>	
Bot. 11ab General Botany .....	10
Zool. 10 General Zoology .....	5
Zool. 24 Human Physiology .....	5
Chem. 13ab or 11abc General Chemistry .....	10-15
Phys. 11a and 25 Gen. Phys. and Selected Topics, or Phys. 11abc General Physics .....	10-15

NOTE: Students electing the General Science Teaching Minor are urged to take as many courses in mathematics as possible.

## SOCIAL SCIENCES

Students planning to complete teaching majors in the social sciences (including economics and sociology, history and political science) must have their programs approved by one of the Social Science Departments and the School of Education.

TEACHING MAJOR AND MINOR IN SOCIAL SCIENCES

	Teaching Major (65 credits)	Teaching Minor (44 credits)
REQUIRED COURSES:		
Econ. 14ab	Principles of Economics .....	8
Hist. 12ab	Political and Economic Devel. of Modern Europe .....	10
Hist. 21abc	(2 quarters) U. S. History .....	8
Pol. Sci. 14	Introduction to Government .....	5
Pol. Sci. 17a	American Political Institutions..	4
Soc. 16	Elementary Sociology .....	4
Soc. 17	Social Problems .....	5
ELECTIVES: Must include 15 credits of upper division courses from one field: Econ., Hist., Pol. Sci., or Soc.....		
	21	

HISTORY AND POLITICAL SCIENCE (Teaching Major Only)

	Teaching Major (45 credits)
REQUIRED COURSES:	
History 12ab	Political and Econ. Devel. of Modern Europe..
Pol. Sci. 14	Introduction to Government .....
Pol. Sci. 17	American Government .....
History 21abc	United States History (2 quarters) .....
ELECTIVES: .....	
	27 credits as follows: 10 5 4 8 18

ECONOMICS AND SOCIOLOGY (Teaching Major Only)

	Teaching Major (45 credits)
REQUIRED COURSES:	
Econ. 10	Cultural Economics .....
Anth. 14	Social Anth. or Anth. 15, Elem. Anth. ....
Soc. 16	Elementary Sociology .....
Econ. 14ab	Principles of Economics .....
Soc. 17	Social Problems .....
Anthro. 18	Soc. Org. of Primitive Peoples .....
Econ. 19	World Resources and Industries .....
Anth. 19	Race and Minorities .....
ELECTIVES: Must be upper division courses and include at least 8 credits from Econ. and 8 from Soc.....	
	20 credits from the following: 5 5 4 8 5 4 4 3 25

ENGLISH AND SPEECH

Professors Rufus A. Coleman, Leslie A. Fiedler (Chairman), Edmund L. Freeman, Bert B. Hanson; Associate Professors Walter L. Brown, Nan C. Carpenter, Walter Van Tilburg Clark, Vedder M. Gilbert, John E. Moore; Assistant Professors Seymour Betsky, Merrel D. Clubb, Jr., Walter King, Henry V. Larom; Instructors Jesse Bier, Agnes V. Boner, Jane Sommers, Bernard Heringman, Jacob Vinocur.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN ENGLISH.** In addition to the general requirements for graduation listed earlier in the catalog, the student seeking the degree of Bachelor of Arts with a major in English must complete 45 or more 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 by all students working for honors in English or in Speech. Any incoming senior who has a university index in his studies of at least 3.00 may become a candidate for honors and if so, must enroll in English 198, Independent Studies.

Seniors in Schedules A and C should present for graduation a long paper, critical or scholarly, prepared in the English seminar. 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 potential English majors are expected to take English 12abc or 11ab. In addition, they should take, in their freshman year, the Introduction to Humanities (General 15abc), 5 credits of which will be counted toward the English major.
- II. All students are expected to take, in addition, English 30a; English 157b or c and two quarters each from English 58abc and 59abc.
- III. Students who are hoping to go on to do graduate study in English in order to teach in colleges or universities should supplement the core courses with the following required minimum.

#### SCHEDULE A: LITERATURE

Three quarters chosen from 165abc and 171abc (these must be distributed between the two groups); two quarters of 169abc; 192 (Chaucer); and 187bc.

#### SCHEDULE B: CREATIVE WRITING

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

##### FRESHMAN AND SOPHOMORE YEARS

English 11b (creative)—which permits, with approval of the instructor, sophomore registration in English 103a or at least 5 credits in English 17 and English 30bc. This course is a substitute for English 11b.

##### JUNIOR AND SENIOR YEARS

English 164, English 169c, and at least two credits in 169a or b. At least 10 credits in 103a, 160abc and 199 (creative).

#### SCHEDULE C: TEACHING

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

A third quarter of 58abc; a third quarter of 59abc; 187b; 30b or 30c or one quarter of 103abc; Speech 20 or Speech 69ab; Journ. 126 or Drama 30; Eng. 105; Eng. 150.

The student must elect at least one course from each of the three groups below. He may then choose the remaining electives from any of the courses in the department of English and Speech.

**GROUP ONE:** Speech 21, 40, 46abc, 48, 121, 169; Drama 20, 30, 40, 41, 50, 110, 125, 126; Journalism 17, 21ab, 30, 40a, 126, 143.

**GROUP TWO:** 104c, 162abc, 169abc, 177c, 192 (American writers).

**GROUP THREE:** 104ab, 177ab, 157abc, 165abc, 169ac, 171abc, 174abc, 192 (British writers).

- IV. A reading knowledge of a foreign language, classical or modern, is required. Art 31abc; Music 35abc; Psychology 14, Philosophy 52ab, 55 and 153, plus at least two quarters of study in sociology and history (especially 13abc) are strongly recommended. All courses listed under General Humanities and numbered above 100 may be counted toward an English Major.

### COMPOSITION, LANGUAGE AND LITERATURE

#### FOR UNDERGRADUATES

A. **PREPARATORY COMPOSITION.** 1 Q. Autumn. Winter. No credit. Sub-freshman course designed to meet the needs of freshmen who fail to establish an acceptable college performance in the English placement examination at the time of entrance.

**NOTE:** Either English 11ab (10 credits) or 12abc (9 credits) is required of all students in the freshman year. Majors in the department complete the 12abc sequence. A student must complete the sequence he begins, i.e., he may not begin with English 11a and then change to 12b, etc. (See departmental or school curricula.)

11ab. FRESHMAN COMPOSITION. 2 Q. Autumn, winter; winter, spring. Summer. 5 cr. each quarter. See NOTE above. Students who receive a grade of "A" in 11a are exempted from further work in composition. Through the writing of papers, the course offers training in gathering and organization of materials and development of ideas. Study of the structure, form, and variations of the English sentence and paragraph.

12abc. FRESHMAN COMPOSITION. 3 Q. Autumn, winter, spring. 3 cr. each quarter. See NOTE above. Students who receive a grade of "A" in 12b are exempted from further work in composition. Through the writing of papers, the course offers training in gathering and organization of materials and development of ideas. Study of the structure, form, and variations of the English sentence and paragraph.

13. CREATIVE COMPOSITION. 1 Q. Winter. Spring. 5 cr. Open to freshmen only. Prerequisites, English 11a and recommendation of instructor. Credit in this course fulfills the requirement in English 11b, but also permits, with approval of the instructor, sophomore entrance into English 103a. An introduction to the study and writing of verse and short fiction.

17. IMAGINATIVE WRITING. 3 Q. Autumn, winter, spring. 1 cr. each quarter. May be taken for a maximum of 3 credits. Open to freshmen only. Students will be given help in writing stories, sketches, essays, verse, and in the study of those forms.

30abc. ADVANCED COMPOSITION AND CREATIVE WRITING. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Summer, a or b or c. Prerequisites, English 11ab or 12abc, and sophomore standing. Students may enter any quarter. (a) Autumn, winter, spring. Advanced Composition, the study and practice of expository writing. (b) Creative Writing, introductory study and writing of short fiction. (c) Creative Writing, introductory study of the techniques of poetry, with practice in writing.

58abc. INTRODUCTION TO MAJOR BRITISH WRITERS. 3 Q. Autumn, winter, spring. 3 cr. Students may enter any quarter. Prerequisite, sophomore standing. The critical study of literary works by a limited number of major British writers. (a) Shakespeare through Milton. (b) Dryden through Blake. (c) Wordsworth through Yeats.

59abc. INTRODUCTION TO MAJOR AMERICAN WRITERS. 3 Q. Autumn, winter, spring. 3 cr. Students may enter any quarter. Prerequisite, sophomore standing. The critical study of literary works by a limited number of major American writers. (a) Edwards through Emerson. (b) Longfellow through Dickenson. (c) Clemens through Hemingway.

102. THE WRITING OF DRAMA. 1 Q. Autumn. Winter. Spring. 2 cr. A maximum of 6 credits may be taken. Prerequisites, junior standing and 6 credits from Drama 30, 40, 41, 50, 51. May not be taken for graduate credit. Techniques and practice in writing the one-act play and the full-length play. Worthy plays will be given experimental performances.

103abc. CREATIVE WRITING. 3 Q. Autumn, winter, spring. 2 cr. each quarter. Students may enter any quarter. Prerequisites, 11b (creative) and at least sophomore standing, or at least 5 credits from English 17 and English 30bc and junior standing, or submission of manuscript and approval of instructor. May not be taken for graduate credit. The study and writing of fiction, with emphasis on the short story, although longer fiction may be undertaken through submission of a working plan and sample chapters, and approval of the instructor.

104abc. THE NOVEL. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Students may enter any quarter. Prerequisite, junior standing. May not be taken for graduate credit. (a) English fiction. (b) Continental fiction. (c) American fiction. Given in 1956-57 and in alternate years.

150. LITERATURE FOR THE HIGH SCHOOL TEACHER. 1 Q. Autumn. Summer. 3 cr. For English teaching majors and minors. May not be taken for graduate credit. A critical survey of the literature usually taught in secondary schools with intensive study of a few selections. The course will form a basis for the development of a curriculum in literature for grades 7 through 12.

161. LETTER AND REPORT WRITING. 1 Q. Autumn. Winter. Spring. 4 cr. each quarter. May not be taken for graduate credit. Common types of professional letters are written and analyzed, with emphasis upon tone, content, and form; organizing and writing factual reports.

177abc. THE DRAMA. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Students may enter any quarter. Prerequisite, junior standing. May not be taken for graduate credit. (a) Periods of world drama. (b) Drama since Ibsen, in England and in Europe. (c) Contemporary American drama. Given in 1955-56 and in alternate years.

## FOR UNDERGRADUATES AND GRADUATES

105. METHODS OF TEACHING ENGLISH. 1 Q. Winter. 4 cr. Summer. 3 cr. Prerequisite, senior standing. Required for teaching majors and minors in English. 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. Students may not receive credit for this course and the identical course Education 105.

S130. THE AMERICAN SHORT STORY. 1 Q. Summer. 1½-3 cr. Prerequisites, junior standing and English 59abc (2 quarters) or the equivalent. The development of the American short story with reference to trends and types. Readings from Irving, Hawthorne, Poe, Melville, Harte, Aldrich, Stockton, Crane, Porter, James and two or three modern writers.

157abc. SHAKESPEARE AND CONTEMPORARIES. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, junior standing. Students may enter any quarter. (a) Tudor Drama: early liturgical drama, medieval mystery and morality plays, Elizabethan and Jacobean plays with emphasis upon historical development and stylistic characteristics. (b) Intensive study of three of Shakespeare's plays from both historical and neo-critical points of view, together with a sampling of Shakespearean criticism. (c) Extensive reading of Shakespeare's plays with attention to dramatic conventions, source materials, Renaissance ideology, and the poet's artistic development as seen through stylistic analysis.

160abc. CREATIVE WRITING. 3 Q. Autumn, winter, spring. Summer. 2 credits each quarter. Students may enter any quarter. Prerequisites, junior standing and at least 9 credits in English 13, 17, 30bc and 103abc, or submission of manuscript and approval of instructor. Limited enrollment. The study and writing of fiction, with emphasis on the novel, although work in the short story may be continued with approval of the instructor.

162abc. STUDIES IN AMERICAN LITERATURE. 3 Q. Autumn, winter, spring. 3 cr. Prerequisites, junior standing and 2 quarters of English 59abc. Advanced study in major American writers. (a) American Renaissance. (b) American Realism. (c) Modern American writing.

164. TECHNIQUES OF THE MODERN NOVEL. 1 Q. Winter. 3 cr. Prerequisite, junior standing in English. A study of the intentions and methods of such innovators in modern fiction as Dostoevski, Melville, Flaubert, Proust, Stephen Crane, Conrad, Henry James, Joyce, Kafka, Virginia Woolf, E. M. Forster, Faulkner, Hemingway, etc. Author content variable. Designed 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.

165abc. MEDIEVAL LITERATURE. 3 Q. Autumn, winter, spring. Summer. 3 cr. each quarter. Emphasis will be upon the major literary works of art in the Middle ages, particularly in English from 500 to 1500.

169abc. LITERARY CRITICISM. 3 Q. Autumn, winter, spring. 2 cr. each quarter. Students may enter any quarter. Prerequisites, junior standing and 9 credits in literature. A chronological study of theoretical and practical criticism, with some practice in the writing of criticism. (a) Criticism of Antiquity. (b) Renaissance, Neo-classical, and Romantic criticism. (c) Contemporary criticism.

171abc. RENAISSANCE LITERATURE: EUROPEAN AND BRITISH. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Students may enter any quarter. Prerequisite, junior standing and 8 credits in literature. Studies in Renaissance, Continental and British literature, discovering the inter-relationships of ideas and the development of literary patterns.

174abc. BRITISH LITERATURE IN THE 17th AND 18th CENTURIES. 3 Q. Autumn, winter, spring. Summer. 3 cr. each quarter. Students may enter any quarter. Prerequisites, junior standing and 8 credits of literature. (a) 1600-1660. (b) 1660-1785. (c) 1785-1830.

S175b. THE NOVEL. (Continental Fiction). 1 Q. Summer. 1½-3 cr. Prerequisite, junior standing. Approaches and techniques in the development of the prose fiction of European writers of the nineteenth and twentieth centuries. Reading in their entirety of ten novels. Stendahl, Flaubert, Turgenev, Tolstoy, Dostoevski, Hamsun, Mann, Proust, Joyce, Kafka. Reading of interpretative studies. Written critical appraisals of the works studied and those of other significant figures. Lectures and discussions.

S176. CONTEMPORARY AMERICAN POETRY. 1 Q. Summer of 1955 only. 3 cr. Prerequisite, junior standing. Approaches and techniques in the development of the poetry of American Writers of the 20th Century. Reading of interpretative studies. Written critical appraisals of the works studied and those of other significant figures.

179. VICTORIAN LITERATURE. 1 Q. Spring. 3 cr. Prerequisites, junior standing and 8 credits of literature. Major figures in prose and verse from 1830-1900.

180abc. THE LITERATURE OF ROMANTICISM. 3 Q. Autumn, winter, spring. Summer. 3 cr. each quarter. Prerequisites, junior standing and 8 credits of literature. A study of the literary works of European Romanticism with primary emphasis on British literature.

S183. BRITISH LITERATURE (1890-1930). 1 Q. Summer only. 1½-3 cr. Prerequisites, junior standing and 8 credits in literature. The traditionalists; the realists in verse and fiction; romanticists; writers with a social view; the reviving of drama. Some of the writers to be read are: R. L. Stevenson, Thomas Hardy, Rudyard Kipling, John Galsworthy, H. G. Wells, Joseph Conrad, Oscar Wilde, G. B. Shaw, Robert Bridges, John Masefield.

S186. ENGLISH LANGUAGE FOR TEACHERS. 1 Q. Summer only. 3 cr. Designed especially for teachers returning for summer work. Not a substitute for the 187 requirement for English majors, and not open to anyone who has credit for 187b or c.

187abc. THE ENGLISH LANGUAGE. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Student may enter 187a or b but 187b is prerequisite to 187c. (a) Study of Old English grammar and readings in Old English prose and poetry. (b) An introduction to the study of Modern English. (c) A historical survey of the English language.

S188. ADVANCED GRAMMAR. 1 Q. Summer. 3 cr. Prerequisite, junior standing. The grammar of current English with some reference to historical development and social and regional differences. This course attempts to meet the demands of the student whether he is interested in teaching or increasing his own skill in expression.

S189. BRITISH LITERATURE FROM BLAKE TO DYLAN THOMAS. 1 Q. Summer. 2-4 cr. Prerequisite, junior standing and 8 credits of literature. Students who have had two of the following courses (174b, 174c and S183) cannot receive credit. A study of some major Romantic, Victorian and modern writers in the light of recent criticism. The course is designed for teachers and will fix individual reading assignments to achieve understanding of major English literature from 1800 to our own day.

192. MAJOR WRITERS. 1 Q. Autumn. Winter. Spring. 3 cr. Prerequisites, senior standing and 18 credits in literature. Each year a study of Chaucer will be offered.

193abc. CONTEMPORARY LITERATURE: EUROPEAN AND BRITISH. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Students may enter any quarter. Prerequisites, senior standing and 15 credits in literature. A comparative study, in translation, of selected twentieth-century writers. 193a (autumn) will concentrate on French literature.

198abc. INDEPENDENT STUDIES. 3 Q. Autumn, winter, spring. 2 cr. each quarter. Students may enter any quarter. Prerequisites, senior standing and consent of the chairman of the department. Independent study for English seniors and graduate students, particularly seniors who are seeking honors. Work in several fields of literature.

199. SEMINAR. 2 Q. Autumn, winter. Summer. 1 to 3 cr. each quarter. Continuous for seniors. Prerequisites, senior standing and consent of the instructor. First instruction and practice in research, with creative project permitted, with approval of advisor, for students in schedule B.

#### FOR GRADUATES

200. GRADUATE SEMINAR. Any quarter. Credit variable. Prerequisites, graduate standing in English, and consent of the chairman of the department. Guidance in graduate subjects and research.

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

#### SPEECH

Associate Professors Seth Fessenden, Ralph Y. McGinnis (Chairman); Assistant Professor Evelyn Seedorf.

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 vocation, and for proficiency in professional speech work.

In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in Speech: 45 credits in Speech including Speech 20, 21, 48, 69a, 134, and 167; Drama 40 and 41; 17 credits of elective courses in Speech; and a platform demonstration of Speech pro-

iciency which shall be presented during the senior year. A reading knowledge in the literature of some foreign language, classical or modern, is required.

A special comprehensive examination is required of all candidates for honors in Speech.

Students majoring in Speech may emphasize training in one or more of the following four areas of concentration:

- |                                     |   |
|-------------------------------------|---|
| I. Public Address and Forensics     | III. Interpretation, Radio and Television |
| II. Speech Correction and Audiology | IV. Speech Education and Communication    |

20. PRINCIPLES OF SPEECH. 1 Q. Autumn. Winter. Spring. 5 cr. Open to all students. A beginning course which 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.

21. ARGUMENTATION. 1 Q. Autumn. Winter. Spring. 5 cr. Open to all students. 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.

22. THE CONDUCT OF MEETINGS. 1 Q. Spring. 1 cr. Open to all students. The principles and practice of parliamentary and other procedures used in the conduct of fraternal, professional, and community meetings.

40. PERSUASION. 1 Q. Spring. 3 cr. Prerequisites, sophomore standing and Speech 20 or 21. The principles of influencing belief and conduct by use of emotional appeals. Given in 1956-57 and in alternate years.

42. DISCUSSION. 1 Q. Spring. 3 cr. Prerequisite, sophomore standing. A study of the techniques in making inquiries and solving problems by the means of group thinking.

45. RADIO SPEECH. 1 Q. Autumn. 3 cr. Prerequisite, sophomore standing. 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. Credit not allowed in this course and identical course Radio 45.

46abc. RADIO AND TELEVISION PROJECTS. 3 Q. Autumn, winter, spring. 2 cr. each quarter. Prerequisites, sophomore standing and 10 credits in Radio or Speech. Students may enter any quarter. Creation of radio, television and film programs; the writing of continuities; assisting in the production and recording of various university programs as assigned. Credit not allowed in this course and the identical course Radio 46abc.

48. VOICE AND DICTION. 1 Q. Autumn. Winter. 3 cr. Principles of phonation and enunciation. Analysis of speech sounds, utilizing the phonetic alphabet for the purpose of improving individual speech and achieving vocal flexibility.

67abc. DEBATE. 3 Q. Autumn, winter, spring. 1-2 cr. each quarter. Prerequisites, junior standing and Speech 21. 67a. Autumn: The techniques, strategy, and style of debate. 67b. Winter: Intercollegiate debating. 67c. Spring: Famous historical debates.

69ab. ORAL INTERPRETATION OF LITERATURE. 2 Q. Autumn, winter. 3 cr. each quarter. Prerequisites, sophomore standing and Speech 48. 69a. Autumn: The basic principles of oral reading. An analysis and synthesis of sense and sounds in literature. 69b. Winter: Practice in communicating all forms of literature in an appropriate and individual style, with special consideration of melody, rhythm, tempo, and quality as factors in expressing meaning and mood.

76. PUBLIC PERFORMANCE. 1 Q. Autumn. Winter. Spring. 1-2 cr. May be repeated for a total of 6 credits. Prerequisites, junior standing and Speech 48 and 69a. The principles of public performance. Practice in presenting before public audiences oral readings, lecture recitals, choral reading, public addresses, and group discussions.

#### FOR UNDERGRADUATES AND GRADUATES

121. THE TEACHING OF SPEECH. 1 Q. Winter. 3 cr. Prerequisites, junior standing and 10 credits in Speech. A study of planning the speech curriculum and its relationship to other school subjects, instructional materials, and methods of teaching Speech in the junior and senior high schools. Offered in 1956-57 and in alternate years.

122. THE MODERN FORENSICS PROGRAM. 1 Q. Summer. 3 cr. Prerequisites, junior standing and 10 credits in Speech. The coaching and direction of debate, oratory, declamation, extemporaneous speaking and other

speech contest activities in high schools and colleges. Offered in 1955-56 and in alternate years.

130. INTERPERSONAL COMMUNICATION. 1 Q. Spring. 3 cr. Prerequisites, junior standing and 5 credits in Speech. The principles of group dynamics as they affect human relations of persons working in small groups; sociometry as a means of discovery of lines of communication; and certain formulations in general semantics as tools of evaluation. Offered in 1955-56 and in alternate years.

134. SPEECH CORRECTION. 1 Q. Autumn. 3 cr. Prerequisites, junior standing and 10 credits in Speech. An introductory study of speech disorders, including functional articulation and phonation, delayed speech, stuttering, aphasia, cleft palate, and cerebral palsy.

135. SPEECH CLINIC PRACTICE. 1 Q. Any quarter. 2 cr. May be repeated for a total of 6 credits. Prerequisites, junior standing and Speech 134. Supervised training in the University Speech Clinic. One hour seminar and two hours work in the Speech Clinic each week. Speech clinic cases, including children and adults, will be assigned to the clinicians according to background and competency.

136. SPEECH PATHOLOGY. 1 Q. Winter. 3 cr. Speech 135 is a necessary concurrent registration. A clinical study of the physiological and neurological and psychological bases of speech disorders from the standpoint of their diagnosis, prognosis, and therapy.

137. VOICE SCIENCE. 1 Q. Spring. 3 cr. Prerequisites, junior standing and Speech 134 and 136. The physiological and neurological bases of speech; the physics of sound and analysis of recent research in the field of voice science. Offered in 1956-57 and in alternate years.

138. AUDIOLOGY. 1 Q. Spring. 3 cr. Prerequisites, junior standing and Speech 134. The ear, problems of hearing, and hearing testing techniques. Offered in 1955-56 and in alternate years.

143. ADVANCED PUBLIC SPEAKING. 1 Q. Autumn. 3 cr. Prerequisites, junior standing and 10 credits in Speech. A study of theories of oral style and of models of speech composition.

147. SURVEY OF RHETORIC. 1 Q. Winter. 3 cr. Prerequisites, junior standing and 10 credits in Speech. A survey of ancient, medieval and modern rhetoric. Attention to the contributions of Isocrates, Plato, Aristotle, Cicero, Quintillian, Iovinus, Ward, Campbell, Blair, Whately, and John Quincy Adams to modern rhetoric.

148. PHONETICS. 1 Q. Spring. 3 cr. Prerequisites, junior standing and Speech 48. The neuro-physiological basis of phonetic principles, with consideration of the morphological aspects of oral language, dialects, foreign accents, and current American usage. Offered in 1955-56 and alternate years.

150. HISTORY OF PUBLIC ADDRESS. 1 Q. Spring. 3 cr. Prerequisites, junior standing and 10 credits in Speech. A study of the biographies and speeches of representative speakers, the issues with which they were identified, and their influence on the history of their period. Special attention to the speeches of Socrates, Demosthenes, Cicero, Burke, O'Connell, John Quincy Adams, Lincoln, and Wilson.

161. BUSINESS AND PROFESSIONAL SPEECH. 1 Q. Autumn. 3 cr. Prerequisites, junior standing and 5 credits in Speech. The methods, techniques and psychology of speech for leaders in business, labor, education and the professions. Offered in 1956-57 and in alternate years.

163. SPEECH IN TEACHING AND LEARNING. 1 Q. Winter. 3 cr. Prerequisite, junior standing. 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.

164. THE AUDIENCE. 1 Q. Autumn. 3 cr. Prerequisites, junior standing and 10 credits in Speech. A study of the audience-speaker relationship with a comparison of modern theories on the factors affecting that relationship. Offered in 1955-56 and in alternate years.

167. GENERAL SEMANTICS. 1 Q. Spring. Summer. 3 cr. Prerequisites, junior standing and 5 credits in speech. A study of language as it affects human relations: special attention to principles of function, order, relations, evaluations and abstractions in language.

169. ADVANCED ORAL INTERPRETATION OF LITERATURE. 1 Q. Spring. 3 cr. Prerequisites, junior standing and Speech 69a. Experimentation in creating artistic oral patterns spoken by a group. A concentration on one major piece of literature to be presented as a public performance.

199. SEMINAR. 3 Q. Autumn, winter, spring. Credit variable. Prerequisite, senior standing in speech. Gathering, recording, and analyzing data. Methods of research and a survey of the research in speech areas.

#### FOR GRADUATES

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.



## FINE ARTS, COLLEGE OF ART

Professor Aden F. Arnold (Chairman); Assistant Professors  
James E. Dew, Walter Hook.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN ART.** In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in Art: 55 or more credits including Art 23, 25ab, 31abc, 35, 39, 40, 51, 107, 150 (For a teaching major or minor, 107 is taken instead of 150.) A reading knowledge of a classical or modern language is required.

### FOR UNDERGRADUATES

23. **DRAWING.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Summer. 2 or 4 cr. Open to all students. Fundamentals of objective and expressive drawing, using varied methods and subject matter.

25ab. **COLOR AND DESIGN.** 2 Q. Autumn, winter. 3 cr. each quarter. Summer, 2 or 4 cr. Open to all students. A course in creative design and use of color, offering an introductory study of theories, methods and problems.

27. **ELEMENTARY CRAFTS.** 1 Q. Spring. 2 cr. Summer. 1-2 cr. Open to all students. May not be given every quarter as indicated.

31abc. **HISTORY OF ART.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, sophomore standing. Student may enter any quarter. A comprehensive treatment of every important art movement, related to corresponding social and cultural backgrounds. Consideration of aesthetic values is an important phase of the work.

35. **SCULPTURE.** 2 Q. Winter, spring. 3 cr. each quarter. Prerequisite, 6 credits of Art 23. A basic course in the methods and techniques of sculpture.

37. **MEDIUMS.** 1 Q. Autumn. Summer. 3 cr. Prerequisite, 6 credits of Art 23. Experiments with a variety of mediums to achieve a comprehensive knowledge of the limitations and possibilities of each, and a study of historical and current practices.

39. **WATER COLOR.** 1 Q. Spring. 3 cr. Summer. 2 or 4 cr. Prerequisite, 6 credits of Art 23. Water color techniques and expressive use of subject matter. Still life and landscape. With consent of instructor, this course may be repeated for a maximum of 6 credits.

40. **PAINTING.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Summer. 2 or 4 cr. Prerequisite, 6 credits of Art 23. Methods and techniques of oil painting, with individual criticism directed towards significant expression.

41. **ADULT CLASS IN PAINTING.** 1 Q. Autumn. Spring. Summer. Credit variable. Prerequisite, consent of instructor. Instruction will proceed along the lines of traditional old masters' techniques on a workshop basis.

51. **LIFE DRAWING.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Prerequisite, 6 credits of Art 23. A concentrated study of the human figure, posed and in action, accompanied by study of anatomical construction. With consent of instructor, this course may be repeated to a maximum of 9 credits.

### FOR UNDERGRADUATES AND GRADUATES

S101. **ART WORKSHOP FOR TEACHERS.** 1 Q. Summer. 3-5 cr. Prerequisite, junior standing or teaching experience. Open to non-majors. Credits from this course will fulfill the requirements for teaching majors and minors in Art 150. A study of practices and theories pertinent to the teaching of art in the public schools, plus studio work in the use of materials and projects. Considerable attention will be given to individual teacher's needs.

103ab. **ELEMENTARY SCHOOL ART.** 2 Q. Autumn, winter. Summer. 3 cr. each quarter. Prerequisite, junior standing. (a) Practice in the use of media and materials with reference to art principles and theories. (b) Methods of teaching elementary school art: objectives, methods, materials and evaluations.

107. **METHODS OF TEACHING SECONDARY ART.** 1 Q. Spring. Summer. 3 cr. Objectives, methods, materials and evaluations.

125. **ADVANCED DESIGN.** 3 Q. Autumn, winter, spring. 1 to 6 cr. each quarter. Prerequisites, junior standing and Art 25ab. Advanced problems of a specialized nature. With consent of instructor, this course may be repeated to a maximum of 12 credits.

140. **ADVANCED PAINTING.** 3 Q. Autumn, winter, spring. 1 to 6 cr. each quarter. Prerequisites, junior standing and Art 40. Advanced training with emphasis on creative work. With consent of instructor, this course may be repeated to a maximum of 12 credits.

150. **SENIOR SEMINAR.** 1 Q. Any quarter. 1-3 cr. per quarter. May be repeated to a maximum of 6 cr. Prerequisites, senior standing and consent of instructor. Study of theories and practices applicable to art as a profession or to the teaching of art.

### DANCE

Instructor Marjorie Cooper.

No major is given in dance.

1. **BASIC TECHNIQUE OF BALLET.** 3 Q. Autumn, winter, spring. 1-3 cr. each quarter. Open to all students. Fundamentals of body rhythms and coordination.

2. **INTERMEDIATE TECHNIQUE OF BALLET.** 3 Q. Autumn, winter, spring. 1-3 cr. each quarter. Prerequisite, consent of instructor. Continuation of Ballet 1.

3. **ADVANCED BALLET.** 3 Q. Autumn, winter, spring. 1-3 cr. each quarter. Prerequisite, consent of instructor. Studies in advanced ballet technique.

4. **BALLET THEATRE.** 3 Q. Autumn, winter, spring. 1-4 cr. each quarter. Prerequisite, consent of instructor. Production of ballet.

### DRAMA AND THEATRE

Assistant Professor LeRoy Hinze (Chairman); Instructor Abe Wollock.

**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 30, 40, 41, 50, 75 or 126, 105abc, 177abc (2 qtrs.), 190 (4 cr.), 191 (4 cr.), plus a minimum of 9 additional credits in the drama department.

The following courses outside the drama department are required: Speech 48 and 69a, English 157b or 157c, and a reading knowledge of the literature of some foreign language, classical or modern.

Senior comprehensive examinations are required only for honors candidates.

This curriculum provides training for students who desire to continue study after graduation in drama and the theatre in any of its phases and for those who wish to teach drama in schools, colleges, and communities, and to produce plays. Seniors must submit for graduation an original play, or a prompt book for the production of a full-length play and also must direct a one-act play.

### FOR UNDERGRADUATES

20. **REHEARSAL AND PERFORMANCE.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Students may enter any quarter. Prerequisite, consent of instructor. Students engaged in any aspect of production including acting, directing, lighting, stagecraft, makeup, costumes, properties, business and publicity, etc. are eligible for registration. A maximum of 6 credits may be earned in Drama 20.

NOTE: 3 credits of Drama 20 may be applied to the Drama major.

30. **INTRODUCTION TO THE THEATRE.** 1 Q. Autumn. 3 cr. Prerequisite, sophomore standing. A survey course covering the elements which make up the art of play production. Consideration of the principles underlying all the arts.

40. **ELEMENTARY ACTING.** 1 Q. Winter. 3 cr. Prerequisite, sophomore standing. 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.

41. **ELEMENTARY DIRECTION.** 1 Q. Spring. 3 cr. Prerequisite, Drama 40. Principles and techniques of stage direction and rehearsal. The production of the one-act play form will be considered and used in this course.

45. **RADIO DRAMA.** 1 Q. Winter. 2 cr. Prerequisite, Drama 20 (2 cr.) or Drama 40. Presentation of drama before the microphone.

50. **ELEMENTARY STAGECRAFT.** 1 Q. Winter. 2 cr. Prerequisite, sophomore standing. Principles of and practice in the construction of stage scenery. Students will work on the construction crews of major productions.

51. STAGE LIGHTING. 1 Q. Spring. 2 cr. Prerequisites, sophomore standing and Drama 50. Principles and practice in stage lighting. The primary purpose is to acquaint the student with theatrical lighting equipment and instruments, and their use. Study of the elements of electricity.

75. STAGE MAKEUP. 1 Q. Autumn. 2 cr. Prerequisites, junior standing and Drama 30 or considerable previous experience and consent of the instructor. Principles of and practice in theatrical makeup. Students will work on makeup for major productions.

#### FOR UNDERGRADUATES AND GRADUATES

105abc. HISTORY OF THE THEATRE. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Students may enter any quarter. Prerequisite junior standing. (a) World theatre to the Renaissance. (b) European theatre from the Renaissance to the present. (c) American theatre with special emphasis on the drama as an expression of national life and culture. To be given in 1956-57 and alternate years.

110. THEATRE IN THE COMMUNITY. 1 Q. Spring. 2 cr. Prerequisites, junior standing and consent of the instructor. Consideration of the place in society of the children's theatre, the high school theatre, and the community and little theatres. Recommended for teachers. Given in 1955-56 and alternate years.

125. ADVANCED STAGECRAFT. 1 Q. Spring. 3 cr. Prerequisites, Drama 50 and 51, and junior standing. Study of 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.

126. STAGE COSTUMING. 1 Q. Autumn. 2 cr. Prerequisites, Drama 30 and junior standing or considerable previous experience and consent of the instructor. History of costumes of various periods. Principles of adapting the period style to the period play. Students will work on costumes for major productions.

140. ADVANCED ACTING. 1 Q. Autumn. 3 cr. Prerequisites, Drama 40 and junior standing. Study and practice in creating a role. Application of the principles of voice, bodily action, pantomime, characterization.

S175. CREATIVE DRAMATICS FOR CHILDREN. 1 Q. Summer. 2 or 4 cr. Prerequisites, junior standing and consent of instructor. Survey of children's literature suitable for adaptation to dramatic form; study of improvisational and other playmaking techniques; study of the dramatic method in teaching non-theatre subjects, demonstrations and practical exercise with laboratory groups of children from the community.

S176. THEATRE FOR CHILDREN. 1 Q. Summer. 2 or 4 cr. Prerequisites, junior standing and consent of instructor. History and objectives of theatre for the child audience; survey of existing professional and community children's theatre programs; study of the techniques of acting, directing, and producing plays for children to be shown before child audiences in the community.

177abc. THE DRAMA. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Students may enter any quarter. Prerequisite, junior standing. May not be taken for graduate credit. (a) Periods of world drama. (b) Drama since Ibsen, in England and in Europe. (c) Contemporary American drama. Given in 1955-56 and in alternate years.

S180. WORKSHOP IN THEATRE. 1 Q. Summer. 2-10 cr. Prerequisites, previous work in theatre or drama courses and consent of chairman. Study and experience in the arts of the theatre 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.

190. THEATRE PROJECTS. 3 Q. Autumn, winter, spring. 2-4 cr. each quarter. Open to seniors and graduates who have taken at least 10 credits in Drama courses or in English 157abc and 177abc, and demonstrated ability in theatre and drama; to others with consent of the instructor on the basis of much work in drama and the theatre. Independent work in design, lighting, costume design, direction, playwriting, study of drama.

191. SEMINAR. 3 Q. Autumn, winter, spring. 2-4 cr. each quarter. Open to seniors and graduates who have taken 10 credits in Drama courses or in English 157abc and 177abc, and consent of the instructor. The student may study the plays of a dramatist, inform himself about actors or playwrights, theatres, or movements in drama.

195. ADVANCED DIRECTION. 1 Q. Winter. 3 cr. Prerequisites, Drama 41 and senior standing. Technique of rehearsing and directing long plays. Principles of producing farce, fantasy, comedy, melodrama, tragedy.

197. STAGE DESIGN. 1 Q. Autumn. 3 cr. Prerequisites, Drama 50. Art 23, and Art 25a or equivalent, and senior standing. Study of the principles of stage design and the relation of the scene to the play. Practice in designing stage settings.

## MUSIC

Professors John Lester, Lloyd Oakland, Luther A. Richman (Dean), Florence Smith, Rudolph Wendt; Associate Professors Eugene Andrie, Bernice Ramskill; Assistant Professors Heinz Arnold, J. Justin Gray, Genevieve Hargiss, J. George Hummel, Florence Reynolds; Instructors Hugh Henderson, Patricia Hodgman, Charles Osborne, Susan E. Schwab, Margaret Walsh.

**HIGH SCHOOL PREPARATION.** Students planning to become professional musicians should have a background of music training prior to entering the University.

**SPECIAL REQUIREMENTS FOR UNDERGRADUATE DEGREES IN MUSIC.** 1. Candidates for the Bachelor of Arts degree with music as a major must complete music courses outlined in Curriculum C. A foreign language is required in addition to the general requirements for graduation listed earlier in the catalog.

2. Candidates for the degree of Bachelor of Music in music education are required to complete satisfactorily 186 credits and the course requirements as outlined in Curriculum A. They must meet two of the three group requirements.

3. Candidates for the degree of Bachelor of Music in applied music and music theory must complete the course requirements as outlined in Curriculum B. They must fulfill all three group requirements.

4. Candidates for the degree of Bachelor of Music 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.

5. All students majoring in music are required to attend a minimum of eight recitals per quarter as prescribed by the faculty.

In the following course descriptions, † indicates applied music and \* indicates ensemble music.

### APPLIED MUSIC FEES

A fee of \$20 per quarter is charged all music majors for instruction in applied music. Non-majors pay \$24 for two lessons per week, or \$12 for one lesson per week, per quarter. All of these fees are halved for the five week summer term.

For majors and non-majors who register for applied music for less than a full quarter or who withdraw before the end of the quarter, a charge of \$1.75 per private lesson will be made. Refunds are based on the number of weeks elapsed since the beginning of the quarter.

Lessons in applied music missed by the instructor will be made up 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 (MUSIC EDUCATION)

Curriculum A prepares for teaching in the public school if the electives are so chosen as to meet the state requirements (see Education).

## COMBINATION VOCAL AND INSTRUMENTAL MAJOR

FRESHMAN YEAR: Music 3, 10, 11abc, 14abc, 25 or 29, 35abc, English 11ab, Psychology 11, Health and Physical Education 11abc and ROTC 1abc or 21abc (men).

SOPHOMORE YEAR: Music 1 (Voice in Class), 4, 10, 15abc, 31abc, 41abc, Health and Physical Education 12abc, ROTC 2abc or 22abc (men) and electives (non-music).

JUNIOR YEAR: Music 5, 10, 25 or 29, 123abc, Education 20, 23, 25 and electives (non-music). Music education majors must register for one quarter of 123abc as Education in order to complete 24 cr. in Education for certification.

SENIOR YEAR: Music 5, 10, 111abc, 134abc, Education 26, and electives (non-music).

## VOCAL MAJOR

Vocal majors in music education follow curriculum A with the following exceptions; Music 25, 29, 31c, and 123c are not required. Music (135abc or 158abc) or academic electives may be substituted.

## INSTRUMENTAL MAJOR

Instrumental majors in music education follow Curriculum A with the following exceptions: Music 1 (Voice in Class), 31b, and 123b are not required. Music 129abc, 135abc, or 158abc or academic electives may be substituted.

## B. CURRICULA FOR BACHELOR OF MUSIC DEGREE (APPLIED MUSIC)

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 in addition to the requirements listed in the curricula.

## MAJOR IN PIANO OR ORGAN

FRESHMAN YEAR: Music 5, 10, 11abc, 35abc, English 11ab, Psychology 11, Health and Physical Education 11abc and ROTC 1abc or 21abc (men).

SOPHOMORE YEAR: Music 6, 10, 41abc, 47abc, Health and Physical Education 12abc, ROTC 2abc or 22abc (men), and electives (non-music).

JUNIOR YEAR: Music 7, 23abc, 31ab, 40, 111abc, 158abc, and electives (non-music).

SENIOR YEAR: Music 8, 134abc, 142, and electives (non-music).

## MAJOR IN VOICE

FRESHMAN YEAR: Music 5, 10, 11abc, 14abc, 35abc, English 11ab, Psychology 11, Health and Physical Education 11abc and ROTC 1abc or 21abc (men).

SOPHOMORE YEAR: Music 6, 10, 15abc, 41abc, Health and Physical Education 12abc, ROTC 2abc or 22abc (men), and a foreign language.

JUNIOR YEAR: Music 7, 10, 31ab, 111abc, 158abc, and electives (non-music).

SENIOR YEAR: Music 8, 10, 134abc, 142, and electives (music and non-music).

## MAJOR IN ORCHESTRAL INSTRUMENTS

FRESHMAN YEAR: Music 5, 10, 11abc, 14abc, 35abc, English 11ab, Psychology 11, Health and Physical Education 11abc, ROTC 1abc or 21abc (men).

SOPHOMORE YEAR: Music 6, 10, 15abc, 41abc, Health and Physical Education 12abc, ROTC 2abc or 22abc (men), and electives (non-music).

JUNIOR YEAR: Music 7, 10, 31ac, 40, 111abc, 158abc, and electives (non-music).

SENIOR YEAR: Music 8, 10, 40, 134abc, 142, and electives (music and non-music).

## MAJOR IN THEORY AND COMPOSITION

FRESHMAN YEAR: Music 1, 3 (piano), 4, 10, 11abc, 35abc, English 11ab, Psychology 11, Health and Physical Education 11abc and ROTC 1abc or 21abc (men).

SOPHOMORE YEAR: Music 2, 4, 10, 31abc, 41abc, Health and Physical Education 12abc, ROTC 2abc or 22abc (men), and electives.

JUNIOR YEAR: Music 3, 5, 10, 111abc, 129abc, 158abc, 159abc, and electives.

SENIOR YEAR: Music 5, 10, 134abc, 169abc, 179abc, and electives.

### C. CURRICULUM FOR BACHELOR OF ARTS DEGREE WITH MAJOR IN MUSIC

This degree does not lead to certification for teaching in the public schools. A minimum of 63 credits should be in music.

**FRESHMAN YEAR:** Music 3, 10, 11abc, 35abc, English 12abc, General 15abc, Health and Physical Education 11abc, ROTC 1abc or 21abc (men), and electives (non-music).

**SOPHOMORE YEAR:** Music 4, 10, 41abc, General 13abc (or electives from Group I, 12 cr.), Health and Physical Education 12abc, ROTC 2abc or 22abc (men), and a foreign language.

**JUNIOR YEAR:** Music 5, 10, 111abc or 125abc, foreign language, 15 cr., electives from Group III, 12 cr., free electives, 6 cr.

**SENIOR YEAR:** Music 5, 158abc or 134abc, 12 cr. of electives from Groups I, II, III, free electives, 12 cr.

#### APPLIED MUSIC

Upon entrance to any applied music course, the student will be given a placement examination and assigned to the grade to which his ability, previous training, and experience entitle him. In case of extraordinary improvement, the music faculty, on the basis of the regular semi-annual examination, may allow a student to skip one or more grades.

#### ‡PIANO

1. PIANO. Any quarter. 1-2 cr. Individual instruction for beginners. All major and minor scales 2 octaves H.S. 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 sightreading.

2. PIANO. Any quarter. 1-2 cr. Prerequisite, 3 cr. in either Piano 1, Music 14abc, or placement test. All major and minor scales 2 octaves H.T. Further development of harmonization, transposition, memorization, and sight-reading. Materials such as Felton Progressing Studies and Bartok Mikrococosmos Books I and II.

3. PIANO. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Piano 2 or Music 15c. Major and minor scales H.T. 4 octaves; tonic triad and diminished seventh arpeggios. Clementi sonatinas, easy Chopin mazurkas, Palmgren, May Night. Simple melodic dictation; aural analysis of augmented and diminished triads and 7th chords; sight reading of easy accompaniment forms.

4. PIANO. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Piano 3. Scales M.M. 96; arpeggios, major and minor triads and sevenths 4 octaves, M. 72; Lambert Studies Bk. II, selected sonatas of Haydn, Mozart, Beethoven, Schumann, "Prophet Bird." Bach, Eighteen Little Preludes and Fugues. Sight reading of Bach chorales.

5. PIANO. Any quarter. 1-4 cr. Prerequisite, 3 cr. in Piano 4 or placement test. All major and minor scales, all arpeggios (Major, minor, diminished 7th, dominant 7ths), 16th notes M.M. 120; Philipp; broken chords, finger and double-note exercises; Cramer studies. Bach, Two-part inventions; Mozart, and early Beethoven sonatas; Chopin, preludes; selected romantic and modern pieces.

6. PIANO. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Piano 5. All major and minor scales in 3rds, 6ths, 10ths, contrary motion, and arpeggios M.M. 152; scales in double 3rds and octaves; Phillip, technical exercises; Clementi studies (Gradus ad parnassum); Bach, Three-part inventions; French suites; Mozart, sonatas of greater difficulty; Beethoven sonatas such as Op. 10, No. 1; Chopin, nocturnes, waltzes; Schumann, shorter works.

7. PIANO. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Piano 6. Scales in double 6ths. Chopin Etudes; Beethoven Sonatas of the difficulty of Op. 31, No. 3; Bach, Well-Tempered Clavichord; Brahms; Chopin, larger works; romantic and modern pieces; Survey of literature and ensemble work.

8. PIANO. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Piano 7. Bach, Chromatic Fantasie and Fugue; a concerto; Beethoven sonatas such as Op. 53. Survey of literature.

#### ‡ORGAN

1. ORGAN. Any quarter. 1-2 cr. Prerequisite, placement in Piano 3. Individual instruction for beginners. Preparatory studies for manuals alone, pedals alone. Trios for manuals and pedal by Douglas-Cronham. Principles of registration (Hammond organ if desired). Explanation of hymn styles. Easy pieces from all periods of organ literature.

2. ORGAN. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Organ 1. Dickinson, Technic and Art of Organ-Playing. Pedal studies and trios. Hymns manualiter and with pedal. Short choral preludes and pieces suitable for church. Bach, Little Preludes and Fugues in G minor and F major.

3. ORGAN. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Organ 2. Carl, Master Studies for Organ. Major scales for manuals and pedal. Chorales manualiter and with pedal. Bach, Little Preludes and Fugues in G major, B flat major and A minor. Wedding and funeral music of churchly quality. Improvisation of simple hymn arrangements.

4. ORGAN. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Organ 3. Minor scales for manuals and pedal. Pedal arpeggios. Easier chorale preludes from Bach's Little Organ Book. Little Preludes and Fugues in C major, D minor, and E minor. Study of 18th century ornamentation. Movements from Mendelssohn and Guilman Sonatas.

5. ORGAN. Any quarter. 1-4 cr. Prerequisite, 3 cr. in Organ 4 and/or placement in Piano 5. Gleason, technical and stylistic studies, Nilsen, Organ Book and from the works of Walther, Buxtehude, Zachau, Boehm and other Baroque masters. Explanation of Baroque music symbolism, Mendelssohn Sonatas. Anthem accompaniments.

6. ORGAN. Any quarter. 1-4 cr. Prerequisite, 12 cr., in Organ 5. Nilsen pedal studies in thirds and octaves. Bach, Preludes and Fugues in B minor C minor, Toccata and Fugue in D minor. Schuebler Chorals. Buxtehude, Chaconne in E minor. Chorale preludes by Brahms and Karg-Elert. Modulation and transposition. Vierne, Piece in Free Styles.

7. ORGAN. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Organ 6. Dickinson technic transposed. Bach Trio Sonatas, Concerto, Preludes and Fugues in G major, E flat major, A minor, Handel Concerto, Vierne Symphonies I and II. Franchk, Catabile, Piece Heroique, Pastorale, Chorale in A minor. Study of Liturgy. Pieces by Pepping, Honegger, Sowerby, Edmundson.

8. ORGAN. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Organ 7. Gleason technic as needed. Bach, Toccata and Fugue in F, Fantasy and Fugue in G minor, Passacaglia and Fugue, Choral variations. Franck, Chorales in E major and B minor. Pieces by Reger, Dupre, Langlais, Tournemire, Messiaen, Hindemith and Sessions. Cantata and oratorio accompaniments.

#### †HARP

1. HARP. Any quarter. 1-2 cr. Prerequisite, placement in piano 3. Individual instruction for beginners. Robinson, First Lessons for the Harp; comprising a series of graded technical exercises and studies; Dilling, Old Tunes for the Harpist.

2. HARP. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Harp 1. Major and Minor scales 2 octaves; Bochs, Celebres Etudes Book I (Op. 318) Martenot edition; Dilling, Thirty Little Classics for the Harp; easy solos such as Trois Pieces Faciles by Grandjany.

3. HARP. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Harp 2. Tonic, dominant, diminished, and whole tone glissandos; Bochs, Celebres Etudes Book 2 (Op. 318) Martenot edition; Grandjany, Harp Album; selected compositions by Hasselmans, Grandjany, and Renie.

4. HARP. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Harp 3. Bochs, Celebres Etudes Book 1 (Op. 34) Martenot edition; Kirchhoff-Grandjany, Aria and Rigaudon; Handel-Grandjany, Saraband; Grandjany, Automne; Grandjany, two French Folksongs.

5. HARP. Any quarter. 1-4 cr. Prerequisite, 3 cr. in Harp 4 or placement test. Review of all major and minor scales and glissandos. Continued study of the Bochs Etudes Book 1 (Op. 34), Bach-Grandjany, Largo from the fifth Violin Sonata; Schubert-Grandjany, Andante; Pierne, Impromptu-Caprice; Dubussy-Renie, Arabesque No. 1.

6. HARP. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Harp 5. Dizi, 48 Studes Book 1 (Hasselmans edition); Handel-Grandjany, Concerto; Tournier, Feerie (Prelude and Dance); Prokofieff, Prelude in C; Chavarri-Grandjany, El Viejo Castillo More.

7. HARP. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Harp 6. Dizi, 48 Etudes Book 2 (Hasselmans edition); Sammartini-Grandjany, Piece Ancienne; Francisque-Grandjany, Favane and Bransies; Mozart, Concerto for flute and harp; Grandjany, Rhapsodie.

8. HARP. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Harp 7. Continued study of the Dizi Etudes Book 1 and 2. Grandjany, Aria in classic style for harp and organ; Bach-Grandjany, Alemande-from "Six Pieces Classiques"; Renie-Legende; Ravel, Introduction and Allegro; Grandjany, Children's Hour (Suite for the Harp).

## †CLAVICHORD

1. CLAVICHORD. Any quarter. 1-2 cr. Prerequisite, placement in Piano 5. Individual instruction for beginners. Clavichord touch, control of legato, *legatissimo*, non legato and staccato. Renaissance music: Italian, Spanish, and English keyboard and lute compositions, transcribed. Easier works by Narvaez, Merulo, Cabezon, Byrd, Dowland, Gibbons and other virginalists. Discussion of early dance form and song variations.

2. CLAVICHORD. Any quarter. 1-2 cr. Continuation of 1. More difficult Renaissance works.

3. CLAVICHORD. Any quarter. 1-2 cr. Prerequisite, 2 cr. in Clavichord 1 and/or 2. Easier ordres by Couperin, pieces by Lully and other 17th century composers. Study of Baroque ornamentation and stylistic directives found in the text.

4. CLAVICHORD. Any quarter. 1-2 cr. Continuation of 3. More difficult ordres by Couperin, pieces by Rameau, Marchand, d'Aquin and other 18th century French masters.

5. CLAVICHORD. Any quarter. 1-2 cr. Prerequisite, a total of 4 cr. in Clavichord 1 and 3. Easier preludes and Fugues from Bach's Well-Tempered Clavichord, Vol. I, French Suites. Study of polyphonic keyboard style. Pieces by Scheidt, Froberger and Kuhnau.

6. CLAVICHORD. Any quarter. 1-2 cr. Continuation of 5. More difficult Preludes and Fugues from the Well-Tempered Clavichord, Vols. I and II. Bach's English Suites, Partitas. Suites by Wilhelm Freidemann Bach, Krebs, and other German masters of the 18th century.

## †VOICE

1. VOICE. Any quarter. 1-2 cr. Individual or class instruction for beginners. Breathing, resonance, vowel formation, and posture as related to tone production. Simple vocalises of Clippinger, Lutgen, Vaccai or other vocalises of similar difficulty. Methods of producing *crescendo*, *diminuendo*, *legato*, *staccato*, flexibility, velocity. Sight reading. Songs in English such as Charles, When I Have Sung My Songs; Mendelssohn, On Wings of Song.

2. VOICE. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Voice 1. Development of *crescendo*, *diminuendo*, *legato*, *staccato*. Continuation of vocalises. Major, minor and chromatic scales. Sight reading. Songs in English such as Huhn, Invictus; Franz, Dedication (male). Haydn, My Mother Bids Me Bind My Hair; Wilson, When Love Is Kind (female).

3. VOICE. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Voice 2. Problems of musicianship approached with a study of rhythms, dynamics and phrasings. Sight reading. Continuation of English songs. Old Italian songs such as Scarlatti, O Cessate di Piagarmi; Pergolesi, Nina; Monteverdi, Lasciatemi Morire; Giordani, Caro Mio Ben.

4. VOICE. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Voice 3. Development of flexibility and velocity. Sight reading. Representative song literature from Bach, Brahms, Handel, Debussy, Duparc, Hageman, Carpenter, etc., and operatic and oratorio arias.

5. VOICE. Any quarter. 1-4 cr. Prerequisite, Music 1, Voice and/or placement test. Technical studies as in Voice 1-4 with greater concentration. Must be able to demonstrate musicianship, satisfactory range and quality of voice, and ability to pursue the course successfully. Italian, French, German diction with selected songs in these languages. Emphasis on Italian.

6. VOICE. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Voice 5. Continued study of literature with emphasis on German *Lieder*, oratorio and operatic literature.

7. VOICE. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Voice 6. Continued study of literature with emphasis on modern French opera, oratorio, and English literature.

8. VOICE. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Voice 7. More extended study and survey of vocal literature. Program building.

## †VIOLIN

1. VIOLIN. Any quarter. 1-2 cr. Individual or class instruction for beginners. All major and minor scales and arpeggios in one octave. Positions through the third. Elements of shifting and vibrato. Introduction to *legato*, *staccato*, *spiccato* bowings, *pizzicato*. Merle Isaac-Album of Violin Solos. Wohlfahrt—Bk. I.

2. VIOLIN. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Violin 1. All major and minor scales and arpeggios in two octaves. Chromatic scales. Shifting in positions one through five. Wohlfahrt Bk. II. Fischel—Prep-Double Stops.



3. VIOLIN. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Violin 2. Two octave major and minor scales with the following bowings: legato, staccato, spiccato, group spiccato, martele, loure. Hans Sitt, Practical Method. Kayser Etudes. Vivaldi A minor concerto or equivalent.

4. VIOLIN. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Violin 3. Major and minor scales and arpeggios in three octaves. Emphasis on bowing styles and phrasing. Begin Kreutzer Etudes. Broza and Britten—Violin Passages. Corelli and Schubert. Sonatas or equivalent.

5. VIOLIN. Any quarter. 1-4 cr. Prerequisite, 3 cr. in Violin 4 or placement test. Complete Kreutzer Etudes. All major and minor scales in 3 octaves, 16th notes m.m. 100 in all bowing styles. Tartini G minor sonata, plus literature of equivalent difficulty. Mozart G major concerto.

6. VIOLIN. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Violin 5 or placement test. Fiorillo Caprices. Mendelssohn concerto in E minor. Bruch Concerto in G minor, plus literature of equivalent difficulty.

7. VIOLIN. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Violin 6 or placement test. Rode Caprices. Bach solo partita in E major, Beethoven concerto plus literature of equivalent difficulty.

8. VIOLIN. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Violin 7 or placement test. Bach solo sonata in G minor, Paganini Caprices, Brahms concerto, and literature of equivalent difficulty.

#### †CELLO

1. CELLO. Any quarter. 1-2 cr. Individual or class instruction for beginners. Elementary studies in first and fourth positions. Dotzauer Method Vol. I; Edith Otis pieces; Schmidt, Six Easy Pieces.

2. CELLO. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Cello 1. Studies in second and third position. All major and minor scales 2 octaves with various bowings. Introduction of vibrato. Dotzauer Method Vol. II. Easy pieces using position studied such as Old Masters for Young Cellists.

3. CELLO. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Cello 2. Studies in fifth, sixth, seventh positions. Continued study in vibrato. Studies by Lee, Grutzmacher, Schroeder. Marcello Sonata; pieces by Popper, Squire, Jarnfeldt.

4. CELLO. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Cello 3. Introduction of thumb position. Major and minor scales in 3 octaves. Arpeggios, bowing studies. Advanced Dotzauer etudes; Merk etudes; Eccles Sonata, pieces such as Bloch, Prayer, Granados, Intermezzo.

5. CELLO. Any quarter. 1-4 cr. Prerequisite, Cello 4 or placement test. Advanced thumb position studies. Chromatic scales. Review of 3-octave major and minor scales. Studies by Grutzmacher and Lee. Early classical sonatas such as Sarmartini. Klengel Concertino; Mendelssohn, Student Concerto; Bach, Suite 1.

6. CELLO. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Cello 5. Major scales and arpeggios in 4 octaves. Sonatas by Vandini, Grieg. Bach Suites II and III. Saint-Saens Concerto.

7. CELLO. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Cello 6. Major and minor scales in 4 octaves; Duport Etudes; Solos; Popper, Hungarian Rhapsody; Bruch, Kil Nidrei; Lalo, Concerto; Bach Suite No. IV.

8. CELLO. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Cello 7. Scales in 3rd and 6th. Piatti Caprices; Popper Etudes. Bach Suite V; Beethoven Sonatas; Dvorak, Haydn Concertos. Pieces by modern composers.

The course for string bass is similar to that for cello.

#### †TRUMPET OR CORNET

1. TRUMPET. Any quarter. 1-2 cr. Individual or class instruction for beginners. Mouthpiece placement, tone production, attack, and slurring. Methods: Clarke, Elementary Studies for Cornet; Arban, Complete Method; S. Hering, 40 Progressive Etudes; Pettit, Methode pour cornet a piston (Vol. I).

2. TRUMPET. Any quarter. 1-2 cr. Prerequisite, 3 cr. in trumpet 1. Embouchure strengthening and development. Methods: (In addition to those required in trumpet 1.) Goldman, Daily Embouchure Studies; Reinhardt, Concone Studies for Trumpet.

3. TRUMPET. Any quarter. 1-2 cr. Prerequisites, 3 cr. in trumpet 2. Intensive study of embouchure development. Studies in the mastery of legato and dynamic control. Perfection of single staccato tonguing. Beginning scale work. Methods: (In addition to those required in trumpet 2.) Hering, 32 Etudes; Schlossberg, Daily Technical Drills; Clarke, Technical Studies (2nd series); Duhem, Etudes. Easy solos by Balay, Andreu, Cools, and Cords.

4. TRUMPET. Any quarter. 1-2 cr. Prerequisite, 3 cr. in trumpet 3. The development of technical facility. Intensive study of scales and arpeggios. The development of a deeper and more thorough musical comprehension. Methods: (In addition to those required in trumpet 3.) Laurent, *Etudes Pratiques* (Vol. I); Bousquet, 36 Celebrated Etudes; Brandt, *Orchestral Etudes*; Williams, *Method for Trumpet* (Vol. II). Intermediate solos by Busser, Ropartz, Mouquet, Petit, von Weber, Alary, and Bohme.

5. TRUMPET. Any quarter. 1-4 cr. Prerequisite, 3 cr. in trumpet 4. The development of orchestral techniques. Complete mastery of all fundamentals. Study of ornaments. Triple and double tonguing. Transposition to trumpet in C and in A. Methods: (In addition to those required in trumpet 4.) Laurent, *Etudes Pratiques* (Vol. II); Williams, *School of Transposition*; Sasche, 100 Etudes; Glantz, *Etudes* (Vol. I); Hering, 24 Advanced Etudes; Petit, *Methode pour cornet a piston*. Intermediate solos by Arban, Goeyens, Dallier, Balay, and Gaubert.

6. TRUMPET. Any quarter. 1-4 cr. Prerequisite, 12 cr. in trumpet 5. Further development of orchestral techniques. Transposition to trumpet in C, A, D, and F. Study of passages from the orchestral repertoire. Work in the complex rhythms of the contemporary schools of composition. Further study of ornaments. Methods: (In addition to those required in trumpet 5.) Glantz, *Etudes* (Vol. II); St. Jacome, *Complete Method* (Vol. II); Mancini, *Modern Etudes*; Maxime Alphonse, *Etudes Nouvelles* (Vol. I); Bartold, *Orchestral Studies from the Symphonic Repertoire* (Classical and Modern Works, Vol. I & II). Difficult solos by Haydn, L. Mozart, Fitzgerald, LeClair, and Handel.

7. TRUMPET. Any quarter. 1-4 cr. Prerequisite, 12 cr. in trumpet 6. Further study of transposition to trumpet in C, A, D, F, E-flat, and E. Further studies of orchestral passages. The study of the high trumpet in D. More study of modern rhythms. The reading of works in manuscript. Methods: (In addition to those required in trumpet 6.) Mancini, *Rhythmic Etudes*; Mazas, *Manuscript Duets*; Maxime Alphonse, *Etudes Nouvelles* (Vol. II); Barthold, *Orchestral Studies from the Symphonic Repertoire* (Classical and Modern Works, Vol. III); The Works of R. Strauss. Difficult solos by Bach, Goedicke, and Vidal.

8. TRUMPET. Any quarter. 1-4 cr. Prerequisite, 12 cr. in trumpet 7. The development of tone, technique, fluency, interpretation, sight reading and transposition to a level comparable with artistic professional performance. Transposition to C, A, D, F, E-flat, E, A-flat, B-natural, G, D-flat, and F (alto). Methods: (In addition to those required in trumpet 7.) Bartold, *Orchestral Studies from the Symphonic Repertoire* (The Works of Wagner, Vol. I & II). A review of the longer solo works by Haydn, Vidal, and Fitzgerald. Difficult solos in the longer forms by Bach, Goedicke, Pilss, Feldman, Bozza, and Hindemith.

#### †CLARINET

1. CLARINET. Any quarter. 1-2 cr. Individual or class instruction for beginners. Langenus Book I. Major scales and arpeggios. Development of correct embouchure, breath control, staccato, tone production and technic. Solos: Mozart, *Adagio Religioso*; Debussy, *Petite Piece*.

2. CLARINET. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Clarinet 1. Langenus Book II. Further develop flexibility and freedom of style necessary for performance of more difficult compositions. Exhaustive study of tone production and staccato. Solos: Delmas, *Promenade*; Kalinikow, *Chanson Triste*.

3. CLARINET. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Clarinet 2. Rose, 40 Studies, Book I; Klose, Book I. Develop musicianship and artistic performance. Lazarus and Cavallini Duets. Solo: Monti, *Czardus*, Jean-Jean, *Second Andantino*.

4. CLARINET. Any quarter. 1-2 cr. Prerequisite, 3 cr. in Clarinet 3. Rose, 40 Studies, Book II; Baermann Method Book III. Sarlit Etudes. Comprehensive study of all major and minor scales for velocity with various articulations. Solos: Weber, *Concertino*; Delmas, *Italian Fantaisie*.

5. CLARINET. Any quarter. 1-4 cr. Prerequisite, 3 cr. in Clarinet 4 and/or placement test. Complete review of tone production, embouchure and breath support. All major and minor scales and chords memorized Labanchi Method, part II. *Orchestral Studies*, Peter's Edition. Introduction to symphonic clarinet work. Solos: Grovley, *Lamento* and *Taratello*; Lefevre, *Fantaisie Caprice*.

6. CLARINET. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Clarinet 5. Jean-Jean Etudes, *Studies in phrasing of cadenzas*, Langenus. *Studies in transposition*. Concertos: Spohr, Mozart; Sonatas; Brahms, Reger, Saint-Saens.

7. CLARINET. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Clarinet 6. Perier Method. Further study of symphonic literature. Rode Studies. Study

of various "schools" of clarinet playing. Concertos: Mendelssohn, Spohr, Milhaud, Jean-Jean, Au Clair de la Lune.

8. CLARINET. Any quarter. 1-4 cr. Prerequisite, 12 cr. in Clarinet 7. Examination of all works and methods and assaying of their value in teaching clarinet. Further study of modern literature and development of artistry in phrasing style and command of the instrument in solo performance. Beethoven Violin Sonatas (selected); Debussy, First Rhapsody for Clarinet and Orchestra.

The other woodwind instruments upon which a major is acceptable are flute, oboe, bassoon, and saxophone. Courses for these instruments are similar to that for clarinet.

#### FOR UNDERGRADUATES

\*10. BAND, ORCHESTRA, CHORAL GROUPS. 1 Q. Autumn. Winter. Spring. Summer. 1 cr. Band, A Cappella Choir, Choral Union and Orchestra. Prerequisite, consent of instructor.

11abc. THEORY I. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, pass satisfactorily music placement examination and/or Music 14a. The art and science of music structure, including the study of scales, keys, intervals, chords, cadences, melody writing, beginning modulations and rhythms. Practice in two-, three-, and four-part writing, analysis, dictation, and keyboard application. The course is designed 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.

†14abc. PIANO IN CLASS. 3 Q. Autumn, winter, spring. Summer, 14a. 1 cr. each quarter. Individual instruction for beginners. 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.

†15abc. INTERMEDIATE PIANO IN CLASS. 3 Q. Autumn, winter, spring. 1 cr. each quarter. Prerequisite, 3 cr. in either Piano I, Music 14abc, 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 Mikrococosmos Books I and II.

22ab. INTRODUCTION TO MUSIC EDUCATION IN THE ELEMENTARY SCHOOLS. 2 Q. Autumn, winter. Summer. 3 cr. per quarter. Prerequisite, sophomore standing. (a) A philosophy of teaching music in the elementary schools. The emphasis placed on learning by doing. Study of and participation in singing, listening, rhythm, instrumental, creative, and integration; fifty songs memorized; use of the pitch pipe, autoharp and chording on piano; classroom conducting; basic rudiments of music and keyboard fundamentals. (b) A continuation of 22a, 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.

23abc. CLASS PIANO METHODS. 3 Q. Autumn, winter, spring. 2 cr. each quarter. Prerequisite, placement in Piano 3. A normal class for piano teachers and public school music instructors dealing with methods and materials for teaching piano classes in public schools and private studios. Practical demonstrations with children's classes. Offered in 1955-56 and in alternate years.

†25. STRING INSTRUMENTS IN CLASS. 3 Q. Autumn, winter, spring. Summer. 1 cr. each quarter. Students may enter any quarter. One instrument each quarter, to be selected by students with advice and consent of instructor. A course designed to enable music education majors to gain a practical knowledge of the stringed instruments. May be repeated for a maximum of 4 credits.

†29. WIND AND PERCUSSION INSTRUMENTS IN CLASS. 3 Q. Autumn, winter, spring. Summer. 1 cr. each quarter. Students may enter any quarter. One instrument each quarter to be selected by students with advice and consent of instructor. A course designed to enable music education majors to gain a practical knowledge of the instruments of the band. May be repeated for a maximum of 4 credits.

31abc. CONDUCTING AND INSTRUMENTATION. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Summer, 31a. Prerequisite, 10 credits in music including Music 11ab. (a) Fundamentals of conducting. (b) Choral conducting. (c) Instrumental conducting. Choral and instrumental groups are made available for practical experience. 31a is a prerequisite for 31b or c.

35abc. LISTENING TO MUSIC. 3 Q. Autumn, winter, spring. Section I—Music Majors. 2 cr.; Section II—Non-Music Majors, 1-3 cr. Students may enter any quarter. The elements of musical understanding; musical progress from ancient to modern times. Music of important periods of composition illustrated by means of phonograph selections and departmental programs.

\*40. ENSEMBLE GROUPS AND ORCHESTRA WORKSHOP. 1 Q. Autumn. Winter. Spring. Summer. 1 cr. Any small group of two or more players or singers may have a course outlined by the instructor. Opportunity is offered for the development of sight reading and for gaining acquaintance with music literature; accompanying. Orchestra Workshop is a course in which the student reads orchestra materials (preferably in their secondary instruments), conducts the group, and does some arranging and composing for it. Students may register for more than one ensemble group in any one quarter.

41abc. THEORY II. 3 Q. Autumn, winter, spring. 4 cr. each quarter. 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 Bach chorales; and creative work exemplifying the contents of the course.

45. MICROPHONE AND PROGRAM TECHNIC. 1 Q. Autumn. 2 cr. Basic characteristics of sound, its perception by the human ear, and its transmission and reproduction by radio. The study of equipment and practical experience in its use. Production of musical programs and the selection of music for theme, bridges, sound effects, etc. Credit not allowed for this course and identical course Radio 4.

47abc. KEYBOARD HARMONY. 3 Q. Autumn, winter, spring. 1 cr. each quarter. Prerequisites, Music 41abc or concurrent registration and placement in Piano or Organ 5. Practical application of theory principles to the keyboard. Exercises in modulation, transposition, and development of extempore playing.

#### FOR UNDERGRADUATES AND GRADUATES

105. APPLIED MUSIC. (Voice, piano, organ, string or wind instruments.) Autumn, winter, spring. Summer. 1-8 cr. Prerequisites, completion of Music 8 or graduate standing in music education and consent of the Dean of the College of Fine Arts. Individual instruction.

S108. UNIT COURSE IN MUSIC EDUCATION. 1 Q. Summer. 1-3 cr. Prerequisites, junior standing in music or teaching experience and consent of instructor.

111abc. THEORY III. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, Music 41c. Chromatic harmony; altered chords; foreign modulation; analysis and writing in Classic and Romantic styles, both instrumental and vocal.

S114. PIANO TEACHING WORKSHOP. 1 Q. Summer. 1-2 cr. Prerequisites, junior standing in music or teaching experience and consent of instructor.

S120. PIANO FOR THE CLASSROOM TEACHER. 1 Q. Summer. 2 cr. Prerequisites, junior standing and teaching experience. Presenting simple material at a basic level of skill, this course is designed to assist the teacher to a wider utilization of the piano in classroom and school situations.

123abc. SCHOOL MUSIC. 3 Q. Autumn, winter, spring. b and c offered in summer. 3 cr. each quarter. Prerequisite, Music 31a or concurrent registration. Students may enter any quarter. Music Education majors must register one quarter of 123abc as education in order to complete 24 credits in education for certification. (a) Elementary School Music. Materials and procedures. Emphasis on creative musical experiences of children including singing, rhythms, listening, and playing simple instruments. (b) School Choral Program. Materials and techniques for junior high school general music classes and choral groups in junior and senior high school. Emphasis on interrelation of general and specialized classes and their place in the total school program. (c) School Instrumental Program. Materials and techniques for instrumental instruction at all levels and for high school theory classes.

125abc. COUNTERPOINT. 3 Q. Autumn, winter, spring. 2 cr. each quarter. Prerequisite 41c or concurrent registration. Writing and analysis. Tonal contrapuntal techniques of 18th and 19th centuries.

S126. MUSIC FOR PUBLIC PERFORMANCE. 1 Q. Summer. 2 cr. Practical lessons in analysis of cantatas, operettas, pageants, musical plays, and other types of entertainment for production in elementary and high school.

129abc. ORCHESTRATION. 3 Q. Autumn, winter, spring. 2 cr. each quarter. Prerequisite 41c. Orchestrating and transcribing for orchestra and band.

131. **ADVANCED CONDUCTING AND INSTRUMENTATION.** 1 Q. (May be repeated for credit to a maximum of 6 credits.) Autumn, Summer. 3 cr. Prerequisites, Music 31abc and junior standing. A continuation of 31abc. Technics of conducting and problems of interpretation.

S133. **MUSIC APPRECIATION FOR THE CLASSROOM.** 1 Q. Summer. 1 cr. Prerequisite, junior standing or teaching experience. This course is designed to aid teachers interested in music appreciation either as a subject in grade or rural schools or in correlation with related subjects at any level.

134abc. **HISTORY OF MUSIC.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Students may enter any quarter. Prerequisite, Music 35abc or senior standing in music. Music of all periods analyzed: the lives, works and influences of all composers discussed and studied.

135abc. **MUSIC LITERATURE.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, Music 35abc. The historical background and comparison of selected symphonic and choral compositions by great composers. (a) Classical Period, (b) Romantic Period, (c) Modern Period.

140abc. **INTERPRETATION AND STYLE.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Prerequisite, Music 111c. Piano compositions of different national schools and periods and characteristics of each from the standpoint of interpretation and style. Offered in 1955-56 and in alternate years.

142. **SENIOR RECITAL.** 1 Q. 2 cr. Prerequisite, registration in Music 8.

S153. **ORCHESTRA - STRING PROGRAM.** 1 Q. Summer. 3 cr. Prerequisite, Music 31abc or consent of instructor. Methods and literature for elementary and high school string programs.

S154. **INSTRUMENTAL REPAIR.** 1 Q. Summer. 3 cr. 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.

158abc. **ANALYSIS OF FORM.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Prerequisite, Music 41c. The melodic, harmonic, and formal characteristics of music of various periods and styles.

159abc. **COMPOSITION.** 3 Q. Autumn, winter, spring. Summer. 2 cr. each quarter. Prerequisite, Music 41c. A course in creative writing.

163. **AUDIO-VISUAL AIDS IN MUSIC EDUCATION.** 1 Q. Autumn, Summer. 3 cr. Practical use of out-of-school radio listening and commercial movies in school music classes. Study of films and film strips available, and their use in grade and high school music classes.

169abc. **COMPOSITION II.** 3 Q. Autumn, winter, spring. Summer. 2 cr. each quarter. Prerequisite, Music 159c. A continuation of Composition I with writing in larger forms.

179abc. **SIXTEENTH CENTURY COUNTERPOINT.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Prerequisite, Music 41abc or concurrent registration. Direct approach to writing in the late 16th century motet style.

#### FOR GRADUATES

221. **CONTEMPORARY TRENDS IN MUSIC EDUCATION.** 1 Q. Winter. Summer. 3 cr. Prerequisite, graduate standing in music. A survey of basic needs and objectives in curriculum planning for junior and senior high school music. Study of new procedure and practices and a practical review of basic principles underlying music education.

223. **SCHOOL MUSIC ADMINISTRATION AND SUPERVISION.** 1 Q. Autumn, Summer. 3 cr. Prerequisite, graduate standing in music. Designed for graduate students whose primary purpose in advanced study is preparation for administrative or supervisory work in music education. A study of school systems, plans for organizing and administering the music program in the elementary, junior and senior high school.

S259. **ADVANCED THEORY.** 1 Q. Summer. 3 cr. Prerequisites, Music 41c, and graduate standing. The theoretical study of the romantic, impressionistic, and contemporary styles of composition; analysis of the music of these periods, pointing out typical and characteristic devices of each. Emphasis will be placed on the student's composing short pieces synthesizing each style.

262. **GRADUATE SEMINAR IN SCHOOL MUSIC.** Any quarter. Credit variable 1-5. May be repeated for a maximum of 15 credits.

299. **THESIS.** Any quarter. Credit variable. Maximum credit allowable 15.

## FOREIGN LANGUAGES

Professors Paul A. Bischoff, Robert M. Burgess (Chairman); Associate Professors Theodore H. Shoemaker, Thora Sorenson, Assistant Professors Marguerite H. Ephron, Thais S. Lindstrom, Ward H. Powell; Instructors John M. Beyers, John T. Nothnagle.

**HIGH SCHOOL PREPARATION.** Languages taken in high school will be recognized by the University both in meeting foreign language requirements and in fulfilling the requirements for a major in languages. High school work will be evaluated on the basis of a placement examination certified by the Department of Foreign Languages.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN LANGUAGES.** Not more than 90 credits in all foreign languages may be counted toward the Bachelor of Arts degree. Placement examinations are required of all entering students who continue languages in which high school entrance credit is presented. Students who have one high school unit in a modern language should enter course 11c, those who two units, course 15; those with three units, courses numbered over 100. The total number of credits for a major in a foreign language varies with the student's high school preparation. Requirements are set forth below in connection with each language.

### FRENCH

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

1. French 11a to 17 inclusive, or equivalent.
2. French 103abc and at least 13 credits selected from courses numbered over 100.
3. Four quarters, or equivalent, of another language.
4. Two quarters in history of Europe, chosen from the following: History 30ab, 33, 34, 35.

### FOR UNDERGRADUATES

- 11a. ELEMENTARY FRENCH. 1 Q. Autumn. Winter. Summer. 5 cr.
- 11b. ELEMENTARY FRENCH. 1 Q. Winter. Spring. Summer. 5 cr. Prerequisite, French 11a or equivalent.
- 11c. ELEMENTARY FRENCH. 1 Q. Autumn. Spring. Summer. 5 cr. Prerequisite, French 11b or equivalent.
13. INTERMEDIATE FRENCH. 1 Q. Autumn. Winter. Summer. 4 cr. Prerequisite, French 11c or equivalent.
15. ADVANCED FRENCH. 1 Q. Winter. Spring. Summer. 4 cr. Prerequisite, French 13 or equivalent.
17. FRENCH GRAMMAR REVIEW AND COMPOSITION. 1 Q. Autumn. Spring. 3 cr. Prerequisite, French 15 or equivalent.

### FOR UNDERGRADUATES AND GRADUATES

101. FRENCH CONVERSATION. 1 Q. Any quarter. 1 cr. Prerequisite, French 17 or equivalent. May be repeated not to exceed 3 credits.
- 103abc. SURVEY OF FRENCH LITERATURE. 3 Q. Autumn, winter, spring. 2 cr. each quarter. Prerequisite, French 17.
105. MEDIEVAL FRENCH LITERATURE. 1 Q. Autumn. 2 cr. Prerequisite, French 17 or equivalent. Given in 1955 and alternate years.
107. FRENCH RENAISSANCE. 1 Q. Winter. 3 cr. Prerequisite, French 17 or equivalent. Given in 1956 and alternate years.
109. 17th CENTURY FRENCH LITERATURE. 1 Q. Spring. 3 cr. Prerequisite, French 17 or equivalent. Given in 1956 and alternate years.
111. 18th CENTURY FRENCH LITERATURE. 1 Q. Autumn. 3 cr. Prerequisite, French 17 or equivalent. Given in 1956 and alternate years.
113. 19th CENTURY FRENCH LITERATURE. 1 Q. Winter. 3 cr. Prerequisite, French 17 or equivalent. Given in 1957 and alternate years.
115. CONTEMPORARY FRENCH LITERATURE. 1 Q. Spring. 3 cr. Prerequisite, French 17 or equivalent. Given in 1957 and alternate years.
125. SEMINAR. 1 Q. Any quarter. 2-3 cr. Prerequisites, French 17 and junior standing. May be repeated not to exceed 15 credits. Studies of works of outstanding writers.

## FOR GRADUATES

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

## GENERAL HUMANITIES

See General Courses. The courses listed under the heading General Humanities are literature courses. The Department of Foreign Languages will accept credits earned in 104b, 151, 153, 163abc, 177abc and one quarter of 193abc toward a major in any language.

## GERMAN

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

1. German 11a to 17 inclusive, or equivalent.
2. German 103abc and at least 13 credits selected from courses numbered over 100.
3. Four quarters, or equivalent, of another language.
4. Two quarters in history of Europe, chosen from the following: History 29, 30ab, 33, 34, 35.

## FOR UNDERGRADUATES

- 11a. ELEMENTARY GERMAN. 1 Q. Autumn. Winter. Summer. 5 cr.
- 11b. ELEMENTARY GERMAN. 1 Q. Winter. Spring. Summer. 5 cr. Prerequisite, German 11a or equivalent.
- 11c. ELEMENTARY GERMAN. 1 Q. Autumn. Spring. Summer. 5 cr. Prerequisite, German 11b or equivalent.
13. INTERMEDIATE GERMAN. 1 Q. Autumn. Winter. Summer. 4 cr. Prerequisite, German 11c or equivalent.
15. ADVANCED GERMAN. 1 Q. Winter. Spring. Summer. 4 cr. Prerequisite, German 13 or equivalent.
17. GERMAN GRAMMAR REVIEW AND COMPOSITION. 1 Q. Autumn. Spring. 3 cr. Prerequisite, German 15 or equivalent.

## FOR UNDERGRADUATES AND GRADUATES

101. GERMAN CONVERSATION. 1 Q. Any quarter. 1 cr. Prerequisite, German 17 or equivalent. May be repeated not to exceed 3 credits.
- 103abc. SURVEY OF GERMAN LITERATURE. 3 Q. Autumn, winter, spring. 2 cr. each quarter. Prerequisite, German 17.
125. SEMINAR. Studies of works of outstanding writers. 1 Q. Any quarter. 2-3 cr. Prerequisites, German 17 and junior standing. May be repeated not to exceed 25 credits.

## FOR GRADUATES

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

## GREEK

No major is given in Greek.

- 11a. ELEMENTARY GREEK. 1 Q. Winter. Summer. 5 cr.
- 11b. ELEMENTARY GREEK. 1 Q. Spring. 5 cr. Prerequisite, Greek 11a.
- 11c. ELEMENTARY GREEK. 1 Q. Autumn. Summer. 3 cr. Prerequisite, Greek 11b.
13. INTERMEDIATE GREEK. 1 Q. Winter. 3 cr. Prerequisite, Greek 11c.
15. ADVANCED GREEK. 1 Q. Spring. 3 cr. Prerequisite, Greek 13.

## ITALIAN

No major is given in Italian.

- 11a. ELEMENTARY ITALIAN. 1 Q. Autumn. 5 cr.
- 11b. ELEMENTARY ITALIAN. 1 Q. Winter. 5 cr. Prerequisite, Italian 11a or equivalent.
- 11c. ELEMENTARY ITALIAN. 1 Q. Spring. 5 cr. Prerequisite, Italian 11b.
13. INTERMEDIATE ITALIAN. 1 Q. Autumn. 4 cr. Prerequisite, Italian 11c.
15. ADVANCED ITALIAN. 1 Q. Winter. 4 cr. Prerequisite, Italian 13.

## LATIN

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

1. Latin 11a to 17 inclusive, or equivalent.
2. At least 18 credits selected from Latin Seminar (Latin 125).
3. The Ancient World, History 15ab.
4. Greek 11ab may be substituted for a Latin course above 17.

## FOR UNDERGRADUATES

- 11a. ELEMENTARY LATIN. 1 Q. Autumn. Summer. 5 cr.
- 11b. ELEMENTARY LATIN. 1 Q. Winter. 5 cr. Prerequisite, Latin 11a.
- 11c. ELEMENTARY LATIN. 1 Q. Spring. 5 cr. Prerequisite, Latin 11b.
13. INTERMEDIATE LATIN. 1 Q. Autumn. Summer. 4 cr. Prerequisite, Latin 11c.
15. ADVANCED LATIN. 1 Q. Winter. 4 cr. Prerequisite, Latin 13.
17. LATIN READINGS. 1 Q. Any quarter. 2-5 cr. Prerequisite, Latin 15. Advanced readings from outstanding Latin writers.

## FOR UNDERGRADUATES AND GRADUATES

125. SEMINAR. Studies of works of outstanding writers. 1 Q. Any quarter. 2-3 cr. Prerequisites, Latin 17 and junior standing. May be repeated not to exceed 30 credits.

## FOR GRADUATES

299. THESIS. Any quarter. Credits variable. 15 maximum.

## RUSSIAN

No major is given in Russian.

- 11a. ELEMENTARY RUSSIAN. 1 Q. Autumn. 5 cr.
- 11b. ELEMENTARY RUSSIAN. 1 Q. Winter. 5 cr. Prerequisite, Russian 11a or equivalent.
- 11c. ELEMENTARY RUSSIAN. 1 Q. Spring. 5 cr. Prerequisite, Russian 11b or equivalent.
13. INTERMEDIATE RUSSIAN. 1 Q. Autumn. 4 cr. Prerequisite, Russian 11c or equivalent.
15. ADVANCED RUSSIAN. 1 Q. Winter. 4 cr. Prerequisite, Russian 13.

## SPANISH

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

1. Spanish 11a to 17 inclusive, or equivalent.
2. Spanish 103 and 13 additional credits selected from courses numbered over 100.
3. Four quarters, or equivalent, of another language.
4. History 123abc.

## FOR UNDERGRADUATES

- 11a. ELEMENTARY SPANISH. 1 Q. Autumn. Winter. Summer. 5 cr.
- 11b. ELEMENTARY SPANISH. 1 Q. Winter. Spring. Summer. 5 cr. Prerequisite, Spanish 11a or equivalent.
- 11c. ELEMENTARY SPANISH. 1 Q. Autumn. Spring. Summer. 5 cr. Prerequisite, Spanish 11b or equivalent.
13. INTERMEDIATE SPANISH. 1 Q. Autumn. Winter. Summer. 4 cr. Prerequisite, Spanish 11c or equivalent.
15. ADVANCED SPANISH. 1 Q. Winter. Spring. Summer. 4 cr. Prerequisite, Spanish 13 or equivalent.
17. SPANISH GRAMMAR REVIEW AND COMPOSITION. 1 Q. Autumn. Spring. 3 cr. Prerequisite, Spanish 16 or equivalent.
19. COMMERCIAL SPANISH. 1 Q. Spring. 3 cr. Prerequisite, Spanish 17. Writing of Spanish commercial letters and a study of commercial practices in Spanish America. Given in 1956 and in alternate years.



## FOR UNDERGRADUATES AND GRADUATES

101. SPANISH CONVERSATION. 1 Q. Any quarter. 1 cr. Prerequisite, Spanish 17 or equivalent. May be repeated not to exceed 3 cr.

103abc. SURVEY OF SPANISH LITERATURE. 3 Q. Autumn, winter, spring. 2 cr. each quarter. Prerequisite, Spanish 17.

105. CERVANTES. 1 Q. Autumn. 3 cr. Prerequisite, Spanish 17. Given in 1956 and in alternate years. A study of Don Quixote and other works of Cervantes.

107. SPANISH DRAMA OF THE GOLDEN AGE. 1 Q. Winter. 3 cr. Prerequisite, Spanish 17. Given in 1956 and in alternate years.

109. PICARESQUE NOVEL. 1 Q. Winter. 3 cr. Prerequisite, Spanish 17. Given in 1957 and in alternate years.

111. 19th CENTURY SPANISH NOVEL. 1 Q. Autumn. 3 cr. Prerequisite, Spanish 17. Given in 1955 and in alternate years.

113. 19th CENTURY SPANISH DRAMA. 1 Q. Winter. 3 cr. Prerequisite, Spanish 17. Given in 1956 and in alternate years.

115ab. SPANISH-AMERICAN LITERATURE. 2 Q. Winter, spring. 3 cr. each quarter. Prerequisite, Spanish 17. (a) General survey of the literary movement from Colonial times through the Modernista movement. (b) Contemporary prose writers with emphasis on the novel. Given in 1957 and in alternate years.

117. CONTEMPORARY SPANISH DRAMA. 1 Q. Autumn. 3 cr. Prerequisite, Spanish 17. Given in 1956 and in alternate years.

119. CONTEMPORARY SPANISH NOVEL. 1 Q. Winter. 3 cr. Prerequisite, Spanish 17. Given in 1957 and in alternate years.

125. SEMINAR. 1 Q. Winter. Spring. 2-3 cr. Prerequisites, Spanish 17 and junior standing. Outstanding authors and literary movements of Spain. May be repeated not to exceed 15 credits.

127. SEMINAR IN SPANISH-AMERICAN LITERATURE. 1 Q. Any quarter. 2-3 cr. Prerequisites, Spanish 17 and junior standing. Outstanding authors and literary movements of Spanish-America.

## FOR GRADUATES

299. THESIS. Any quarter. Credits variable. 15 maximum.

## FORESTRY

Professors Arnold W. Bolle, Melvin S. Morris, Ross A. Williams (Dean); Assistant Professors Gene S. Cox, Douglas L. Gilbert, John P. Krier, William R. Pierce.

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 third and fourth years, students must have and maintain an index 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.

FIELD COURSE EXPENSE DEPOSITS. The following field course expense deposits will be charged for advanced courses in the School of Forestry: For. 20b, \$5.00; For. 21, \$5.00; For. 22, \$5.00; For. 24, \$5.00; For. 105c, \$3.00; For. 107, \$5.00; For. 126, \$10.00; For. 128, \$10.00; For. 129, \$50.00; For. 133, \$10.00; For. 136b, \$15.00; For. 144, \$50.00; For. 145b, \$50.00; For. 151, \$10.00; For. 163, \$5.00; For. 180, \$5.00.

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

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

## FRESHMAN AND SOPHOMORE YEARS

The Freshman year and the autumn quarter of the Sophomore year are the same for all students enrolled in the School of Forestry. Students are expected to select a specific course of study before they begin the winter quarter of their Sophomore year in one of the following fields: Forest Management, Range Management, Wildlife Management, Wood Utilization, Forest Engineering, Forest Pathology, Forest Protection, Silviculture and Soils, or Economics of Forestry.

First Year: Forestry 11abc; Forestry Botany 10a, Botany 12; Chemistry 11abc or 13ab; Mathematics 13; English 11ab; Speech 20; Health and Physical Education 11abc; Military or Air Science 1abc or 21abc.

Second Year: Botany 22, 27; Economics 14a; Psychology 11; Forestry 12, 20ab, 22, 24, 25, 26ab; Health and Physical Education 12abc; Military or Air Science 2abc or 22abc.

In all cases Zoology 118 may be substituted for Forestry 24.

Utilization and Protection students will substitute Physics 25 for Economics 14a; Pathology, Utilization, students substitute Journalism 134 for Forestry 20b and eliminate Botany 27; Wildlife Management students substitute Psychology 11 for Forestry 24; Forest Economics students eliminate Forestry 22, substitute Business Ad. 11a for Forestry 20b, Economics 14b for Psychology 11 and add Music 35c and Botany 27.

### JUNIOR AND SENIOR YEARS

Optional curricula listed below itemize the specific courses of study included in each field.

#### FOREST MANAGEMENT

Third year. Forestry 105, 107, 109, 110ab, 114, 120, 151; Botany 125; Economics 14b; Journalism 134; Philosophy 50.

Fourth year. Forestry 126, 128, 130, 133, 136ac, 145ab, 146, 148, and either Forestry 180 or Psychology 141.

#### RANGE MANAGEMENT

Third year. Forestry 105, 107, 109, 110ab, 114, 121, 151; Botany 125, 164; Zoology 10.

Fourth year. Forestry 126, 128, 130, 138, 139, 140, 141, 142, 143, 144, 145a, 148, 180.

#### WOOD UTILIZATION

Third year. Forestry 105, 107, 110ab, 114, 115, 120, 124, 132; Chemistry 19; Economics 14a; Botany 125.

Fourth year. Forestry 125, 126, 128, 129, 130, 131, 137, 145a, 146, 148, 192, or 193; Business Ad. 151; Psychology 140; Botany 168 or Mathematics, 5 credits.

#### WILDLIFE MANAGEMENT

Third year. Forestry 105, 107, 109, 110ab, 114, 120, 151; Zoology 10, 23; Botany 125, 164.

Fourth year. Forestry 126, 130, 138, 140, 145a, 148, 168; Zoology 108, 109, 128; and 5 credit hours from Group III requirements.

#### SILVICULTURE AND SOILS

Third year. Forestry 105, 107, 109, 110ab, 114, 115, 120, 151; Botany 125; Philosophy 50; Journalism 134.

Fourth year. Forestry 106, 126, 130, 133, 145ab, 146, 148, 180; Geology 11a or Zoology 125; Group III, 4 credits.

#### FOREST ECONOMICS

Third year. Forestry 105, 110ab, 114, 120, 126, 151; Botany 125; Business Ad. 129; Economics 114. Journalism 134, Philosophy 50; Elective, 2 credits.

Fourth year. Forestry 107, 115, 130, 133, 138, 146, 145a, 148, 150; Business Ad. 151, 185; Economics 107; Mathematics, 5 credits.

#### FOREST ENGINEERING

Third year. Forestry 105, 107, 110ab, 114, 115, 120, 151; Botany 125; Psychology 140; Philosophy 50; Journalism 134.

Fourth year. Forestry 126, 128, 130, 133, 136abc, 137, 145ab, 146, 148.

#### FOREST PROTECTION

Third year. Forestry 105, 107, 109, 110ab, 114, 120, 151; Economics 14a; Botany 125; Journalism 134; Philosophy 50.

Fourth year. Forestry 126, 130, 133, 136ac, 145ab, 146, 148, 150; and Group III, 4 credits.

## FOREST PATHOLOGY

Third year. Forestry 105, 107, 109, 110ab, 114, 115, 120; Botany 125, 141a; Philosophy 50; Chemistry 19.

Fourth year. Forestry 126, 130, 133, 136, 145ab, 146, 148, 180, 191; Botany 168.

## FOR UNDERGRADUATES

10. SLIDE RULE. 1 Q. Any quarter. No credit. Prerequisite sophomore standing, Mathematics 10 and 13. Use of the Log-Log Duplex slide rule in the solution of mathematics problems commonly encountered in the field of forestry.

11abc. SURVEY OF FORESTRY. 3 Q. Autumn, winter, spring. 1 cr. each quarter. Students may 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.

12. MAPPING. 1 Q. Winter. 2 cr. Line drawing and lettering. Methods of map and chart construction from basic survey data. Techniques of map composition and coloring. Use of conventional signs and symbols. Fundamentals of topographic mapping.

20ab. SURVEYING. 2 Q. Autumn. 5 cr. Spring. 4 cr. Prerequisite, Math. 13. (a) 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. (b) Instrument adjustment. Establishment of triangulation, horizontal and vertical controls by transit and level. Topographic surveys and maps obtained by various combinations of instruments. Solar observations. Introduction to earthworks.

21. PLANE TABLE SURVEYING. 1 Q. Spring. 5 cr. Prerequisite, Mathematics 13. 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. Fundamentals of topographic map construction. Primarily for anthropology and geology majors, not for forestry and wildlife majors.

22. MENSURATION-FIELD TECHNIQUES. 1 Q. Spring. 2 cr. Prerequisite, sophomore standing in the School of Forestry. Practice in the use of field instruments for timber cruising, scaling, elementary growth analysis, type and stand mapping.

24. ELEMENTS OF FOREST PROTECTION. 1 Q. Spring. 3 cr. Prerequisites, sophomore standing, Botany 10a, and Forestry 25. Protection of the forest against enemies other than fire and disease; insects, wildlife, man, grazing, and climatic factors.

25. SOILS. 1 Q. Autumn. 4 cr. Prerequisite, Chemistry 11abc or equivalent. A general course in soils of forest and range land; morphological, physical, and chemical properties; soil erosion control.

26ab. DENDROLOGY. 2 Q. Autumn, winter. 3 cr. per quarter. Prerequisite, Botany 22 or consent of instructor. The microstructural and taxonomic relations and distribution of the principal forest trees of the United States and Canada, with some consideration of important foreign species.

## FOR UNDERGRADUATES AND GRADUATES

105. SILVICS. 1 Q. Autumn. 4 cr. Prerequisite, Botany 22. 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.

106. ADVANCED FOREST SOILS. 1 Q. Spring. 3 cr. Prerequisites, Forestry 25 and 105, Botany 22. Relationships of the chemical, physical, and biological properties of soils to forest tree growth; site evaluations; soil surveys. Field trips.

107. SILVICULTURAL METHODS. 1 Q. Spring. 4 cr. Prerequisite, Forestry 105. The production of forest crops; reproduction methods, intermediate cuttings, and cultural operations. Field trips.

108. FARM FORESTRY. 1 Q. Spring. 3 cr. Prerequisite, junior standing in the School of Forestry. The application of the principles of forest mensuration, management, silviculture and soils to small woodland holding.

109. SEEDING AND PLANTING. 1 Q. Spring. 3 cr. Prerequisites, Forestry 105, 107, Botany 22. Artificial reproduction of the forest; collection, extraction, storage, and testing of forest tree seed; direct seeding; nursery practice; forest planting. Field trips.

- 110ab. FOREST MENSURATION. 2 Q. Autumn, winter. 4 cr. each quarter. Prerequisites, Mathematics 13 and Forestry 20a for 110a; Mathematics 25 is recommended for 110b. Application of mathematical methods to forest and range measurement problems. Measurement of the volume and content of timber products; determination of the volume, growth, and yield of trees and timber stands.
114. FOREST FIRE CONTROL. 1 Q. Winter. 4 cr. Prerequisite, Forestry 20a. Forest fire prevention, pre-suppression, and suppression, weather influences, fire behavior, organization, education, and planning.
115. WOOD TECHNOLOGY. 1 Q. Winter. 4 cr. Prerequisites, Forestry 26ab or consent of instructor. Wood identification anatomy: Introducing the relationships of the physical, chemical, and mechanical properties to specific uses.
120. GENERAL RANGE MANAGEMENT. 1 Q. Autumn. 5 cr. Prerequisite, junior standing. An introduction course 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.
121. RANGE FORAGE PLANTS. 1 Q. Spring. 4 cr. Prerequisites, Forestry 120 and Botany 164. Economic range of forage plants; forage value to different kinds of range animals; management problems in their use.
124. CHEMICALLY DERIVED WOOD PRODUCTS. 1 Q. Spring. 3 cr. Prerequisites, Chemistry 19 or equivalent and Forestry 115. Generalized chemistry of wood. Survey of chemically derived products and processes including Naval Stores, pulp paper and modified woods.
125. MECHANICALLY DERIVED WOOD PRODUCTS. 1 Q. Autumn. 3 cr. Prerequisite, 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.
126. SAWMILLING AND LUMBERING. 1 Q. Autumn. 3 cr. Prerequisite, 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.
127. FOREST RECREATION. 1 Q. Spring. 3 cr. Prerequisite, junior standing. Administrative, economic, and social aspects of the recreational use of forest lands. Field trips may be required.
128. SEASONING AND PRESERVATION. 1 Q. Winter. 3 cr. Prerequisite, junior standing in the School of Forestry. Principles involved in seasoning and preservation treatments of woods. Related wood anatomy. Application to present commercial practices.
129. UTILIZATION, FIELD. 1 Q. Spring. 2 or 3 Cr. Prerequisites, junior standing, utilization major. Several weekend trips to study and observe full scale wood products industries on location.
130. VALUATION. 1 Q. Autumn. 4 cr. Prerequisite, Forestry 105 and 107. Finance and investment methods applied to forest enterprises; appraisals.
131. MECHANICAL PROPERTIES OF WOOD. 1 Q. Autumn. 3 cr. Prerequisite, Forestry 115. Mechanical factors related to strength of wood; elementary graphic statics; timber testing.
132. WOOD GLUING AND PHYSICAL PROPERTIES. 1 Q. Spring. 3 cr. Prerequisites, Forestry 115 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.
133. LOGGING. 1 Q. Autumn. 3 cr. Prerequisites, Forestry 105 and 107. 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.
- 136abc. FOREST ENGINEERING. 3 Q. Autumn, 4 cr.; Winter, 3 cr.; Spring, 6 cr. Prerequisites, Forestry 20ab, 110ab, 133 (133 may be taken concurrently). (a) Logging transportation plans; forest road location, design, and construction. (b) (for students specializing in logging engineering) Advanced work in forest road location; development of a logging plan; forest improvements. (c) Application of forest engineering methods and techniques, time and cost studies. Field work.
137. TIMBER MECHANICS. 1 Q. Winter. 3 cr. Prerequisite, Physics 11a. Graphic and analytic statics applied to simple structures; simple beam and truss design; use of timber connectors.

138. WILDLIFE MANAGEMENT. 1 Q. Autumn. 4 cr. Prerequisite, junior standing. The management of wildlife as a resource. Required of all specializing in range management.

139. RANGE TECHNIQUES. 1 Q. Autumn. 4 cr. Prerequisite, Forestry 120. Range surveys, condition, and trend analysis, utilization analysis, damage appraisal. Field trips.

140. RANGE LIVESTOCK NUTRITION. 1 Q. Winter. 3 cr. Prerequisite, Forestry 120. The elements of animal nutrition. The nutritional characteristics of range forage plants. The nutritional requirements of livestock and big game animals.

141. RANGE LIVESTOCK PRODUCTION. 1 Q. Spring. 2 cr. Prerequisite, Forestry 120. Selection, production, and management of range livestock.

142. RANGE ECONOMICS. 1 Q. Spring. 3 cr. Prerequisites, Forestry 120 and Economics 14a. 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.

143. RANGE ADMINISTRATION. 1 Q. Spring. 2 cr. Prerequisite, Forestry 120. 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.

144. REGIONAL RANGE MANAGEMENT. 1 Q. Spring. 6 cr. Prerequisites, Forestry 139, 140, 141. Study of regional range management problems and situations. Work done on senior spring trip.

145ab. FOREST MANAGEMENT. 2 Q. Winter, 5 cr. Spring, 10 cr. (Forest Management trip, 3 cr.; Applied Forest Management, 7 cr.) Prerequisites, Forestry 105ab, 110, and 130 (130 may be taken concurrently). (a) Organization and management of forest properties; determination of allowable cut and regulation of the growing stock. (b) Emphasis on field work necessary in applying forest management, timber cruising, determination of growth, timber marking and scaling.

146. REGIONAL SILVICULTURE. 1 Q. Spring. 3 cr. Prerequisites, Forestry 105 and 107. Application of silvicultural practices to the principal commercial forest species, types, and regions of the United States.

148. FOREST ECONOMICS. 1 Q. Winter. 5 cr. Prerequisites, Economics 14a and junior standing. Economic problems and principles involved in the use of the forest resource and in the distribution of forest products.

150. FOREST POLICY. 1 Q. Autumn. 4 cr. Prerequisite, junior standing. The development of forestry and public land policies, especially in the United States. Policy objectives, programs, and groups.

151. AERIAL PHOTO-INTERPRETATION. 1 Q. Winter. 3 cr. Prerequisite, consent of instructor. Techniques and principles of photographic interpretation; forest, range, and wildlife cover mapping, volume estimation. Also offered as an extension short course for 1 credit.

168. BIG GAME MANAGEMENT. 1 Q. Winter. 3 cr. Prerequisites, Forestry 120 and 138. 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.

180. WATERSHED MANAGEMENT. 1 Q. Winter. 5 cr. Prerequisite, junior or senior standing. A study of the controlling factors necessary for the intelligent application of sound management practices to watershed management. It involves the movement and measurement of water, snow surveys, the applications of the principles of range, forest, and wildlife management to watersheds and their relationship to the control of soil erosion and water conservation.

191. FORESTRY PROBLEMS. 3 Q. Any quarter. 2-5 cr. each quarter. Prerequisites, completion of basic undergraduate work and consent of instructor. Individual problem work in timber, range or wildlife management fields.

192ab. RESEARCH METHODS. 2 Q. Autumn, winter. 3 cr. each quarter. Students may enter any quarter. Prerequisites, senior standing and consent of instructor. (a) Scientific method, application of statistical methods to the design of experiments, research technics, organization of research projects. (b) Analysis and presentation of research results, report writing. Not limited to forestry students.

193. SENIOR SEMINAR. 2 Q. Autumn, winter. 1-2 cr. each quarter. Prerequisite, senior standing. A general review of the newer developments in the various fields of forestry.

195. PUBLIC ADMINISTRATION. Extension course. Winter. 3-7 cr. Prerequisite, undergraduate degree from a college or university of recognized standing or consent of the Dean of the School of Forestry based on applicants' experience and competence. Intensive instruction in the funda-

mentals of sociology, psychology, speech, writing, business administration, public relations and related fields. One month, 20 hours per week. Staff of university specialists in fields involved.

#### FOR GRADUATES

200. RESEARCH. Any quarter. Credit variable. Independent graduate research work in the fields of timber, range, and wildlife management.

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

## GENERAL COURSES

13abc. INTRODUCTION TO BIOLOGICAL SCIENCE. 3 Q. Autumn, winter, spring. 5 cr. each quarter. A general introduction to the field of the Biological Sciences. 13a not open to students who have received credit for Botany 11a or equivalent; 13b not open to students who have received credit for Zoology 10 or equivalent. 13a or 13b or equivalents prerequisite to 13c. (a) An introduction to basic cellular morphology, classification, and possible evolution of the plant phyla; structure and physiology of seed plants; ecological factors and succession. (b) Comparative morphology and physiology and the principal animal phyla, with emphasis upon man; ecological relationships. (c) Principles of heredity and eugenics; history and theory of evolution; evidences for evolution from all fields of biology; modern concepts of mechanism of evolution. Given jointly by the departments of Botany and Zoology.

25. PHYSICAL SCIENCE FOR TEACHERS. 1 Q. Spring. Summer. 5 cr. Open only to majors in elementary teaching. Elements of mechanics, astronomy, and meteorology for teachers.

42abc. SOCIAL SCIENCE FOR TEACHERS. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, sophomore standing. Sociological, anthropological, geographical, and historical factors that are the heritage of modern man.

100. CONSERVATION OF NATURAL AND HUMAN RESOURCES IN MONTANA. 1 Q. Spring. Summer. 3 cr. Prerequisites, junior standing and consent of instructor. The social need for improved conservation practices. A critical survey of climate, physiography, mineral resources, soil and water, as related to plant and animal production and human welfare, and the development of principles underlying improved management of the natural resources. A survey of human and cultural resources. A consideration of methods of social implementation of desired practices. This is primarily a teacher training course. Does not satisfy requirements for degrees in Botany or Zoology or the group requirements in science.

150a. WILDLIFE SEMINAR. 1 Q. Autumn. 2 cr. Prerequisite, senior standing in Wildlife Technology or Forestry. Legal problems, policy and administrative problems.

## GENERAL HUMANITIES

The courses listed under this general heading are literature courses. Any credits earned in this area may be applied toward satisfying Group III requirements except that part of 15abc may not be used as one of the subgroups. See Group III, requirements earlier in the catalog. Such courses may also be applied toward a major in the Department of English, except for those numbered 51 and 15abc. Only five credits of 15abc may be so applied. Courses numbered 104b, 153, 169abc, 177abc, and 193abc will be allowed toward a major in foreign languages.

#### FOR UNDERGRADUATES

15abc. INTRODUCTION TO THE HUMANITIES. 3 Q. Autumn, winter, spring. 5 cr. each quarter. A general survey of the field of the Humanities. Students may enter any quarter. Those who have completed 8 or more college credits in literature may not receive credit in this course. Acquaintance with art and literature through the centuries from the Greeks to Americans, with the primary aims of understanding and appreciation. Given jointly by the Departments of English, Art, and Foreign Languages.

51. CLASSICAL MYTHOLOGY. 1 Q. Any quarter. 2 cr. Open to all students. An examination of the principal deities and myths of the Greeks and Romans with special emphasis upon those which have been important to the history of Western literature, art, and music.

#### FOR UNDERGRADUATES AND GRADUATES

104abc. THE NOVEL. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Students may enter any quarter. Prerequisite, junior standing. (a) English fiction. (b) Continental fiction. (c) American fiction. Given in 1956 and in alternate years.

151. FOREIGN LITERATURES IN TRANSLATION. 1 Q. Autumn. Winter. Spring. Summer. 2 cr. Exploration of the works of foreign authors in translation. The works of a single author or of a group of authors may be treated. Periods and literatures will vary from quarter to quarter. May be repeated to a maximum of 6 credits.

153. STUDIES IN COMPARATIVE LITERATURE. 1 Q. Any quarter. 3 cr. The origin of literary ideas and the dissemination of these ideas, with a comparative study of the way they have been changed or modified in passing from author to author and from country to country.

165abc. MEDIEVAL LITERATURE. 3 Q. Autumn, winter, spring. Summer. 3 cr. each quarter. Prerequisite, junior standing. Emphasis will be upon the major literary works of art in the middle ages, particularly in England from 500 to 1500.

169abc. LITERARY CRITICISM. 3 Q. Autumn, winter, spring. 2 cr. each quarter. Students may enter any quarter. Prerequisite, junior standing and 9 credits in literature. A chronological study of theoretical and practical criticism, with some practice in the writing of criticism. (a) Criticism of antiquity. (b) Renaissance, Neo-classical, and Romantic criticism. (c) Contemporary criticism.

171abc. RENAISSANCE LITERATURE: European and British. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Students may enter any quarter. Prerequisite, junior standing and 8 credits in literature. Studies in Renaissance Continental and British literature, discovering the interrelationships of ideas and the development of literary patterns.

177abc. THE DRAMA. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Students may enter any quarter. Prerequisite, junior standing. May not be taken for graduate credit. (a) Periodical world drama. (b) Drama since Ibsen, in England and in Europe. (c) Contemporary American drama. Given in 1955-56 and in alternate years.

180abc. THE LITERATURE OF ROMANTICISM. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, junior standing and 8 quarters of literature. A study of the literary works of European Romanticism with primary emphasis on British literatures.

193abc. CONTEMPORARY LITERATURE: European and British. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Students may enter any quarter. Prerequisite, senior standing and 15 credits in literature. A study, in translation, of selected twentieth-century writers. 193a (Autumn) will concentrate on French literature.

## GEOLOGY

Professor Kenneth P. McLaughlin (Chairman); Associate Professor Fred S. Honkala; Assistant Professors Robert W. Fields, Robert M. Weidman.

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

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN GEOLOGY.** In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in Geology. Geology 11ab, 22abc, 24ab, 26, 35, 120, 121ab, 191 for a total of 43 credits. Also required are Mathematics 13, 16, 21; Chemistry 11abc or 13ab, 13c; Physics 11abc or 20abc; Zoology 10, 23, English 161. One of the three alternate requirements:

1. Modern Language (French, German, or Spanish) 11abc, 13, 15, 23 credits.

OR

2. History and Political Science (Courses 17ab, 15ab, 116a, 136, and 60 are suggested.) 22-25 credits.

OR

3. Mathematics 22 and 23, 10 credits; plus 15 credits of course work beyond the elementary work mentioned in the preceding paragraph in one of the following: chemistry, physics, or zoology.

**COMBINATION GEOLOGY AND LAW PROGRAM**—Pre-law students in this program complete all of the above requirements except Geology 120, 191; Math. 13, 21; Physics 11abc or 20abc; Zoology 10, 23; English 161; and the alternative Modern Language, History and Political Science, or Mathematics-Science sequence.

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.

Students enrolled in Geology 22abc, 26, 35, 120, 121ab which include field trips share equally the cost of transportation and insurance.

#### FOR UNDERGRADUATES

11ab. GENERAL GEOLOGY. 2 Q. Autumn, winter. 5 cr. each quarter. 3 lectures, 4 hours laboratory. 11a is prerequisite to 11b. The first quarter is given to a study of most of the important earth processes and their significance in the early history of the earth. The second quarter is concerned with later earth history and with processes which are most active at present.

22abc. ADVANCED HISTORICAL GEOLOGY. 3 Q. Autumn, winter, spring. 4 cr. each quarter. 3 lectures, 3 hours laboratory. Prerequisite, Geology 11ab; Zoology 10 is recommended preparation. Geology 22a treats earth origin, Precambrian and early Paleozoic history; 22b continues with later Paleozoic and Mesozoic history; 22c treats Tertiary and Quaternary history, plus a survey of stratigraphic methods and principles. North American stratigraphic successions are considered throughout the course. Laboratories include map, fossil, library and field exercises.

24ab. MINERALOGY. 2 Q. Autumn, winter. 4 cr. each quarter. 2 lectures, two 3-hour laboratories. Chemistry 11c or 13c is prerequisite or may be taken concurrently. The elements of crystallography and the classification and determination of about 250 common minerals by means of physical and chemical properties, with especial emphasis on the ore and rock forming minerals.

26. PETROLOGY. 1 Q. Spring. 4 cr. 2 lectures, two 3-hour laboratories. Prerequisite, Geology 24ab. Study of the common rocks, their mineral composition and physical characteristics, classification, identification in the field, origin and structural features.

35. FIELD GEOLOGY. 1 Q. Spring. 3 cr. Prerequisite, Geology 11ab. The following techniques are demonstrated and applied by the student as he studies a field area and develops geologic maps; recognition, mapping, measurement and description of geologic formations and structures; use of Brunton compass, aerial photographs, and topographic maps. Field work is done on week ends and weekly classroom critiques are held.

#### FOR UNDERGRADUATES AND GRADUATES

101ab. METALLIC MINERAL DEPOSITS. 2 Q. Autumn, winter. 4 cr. each quarter. 3 lectures, one 2-hour laboratory. Prerequisites, Geology 22c and 26. Study of the theoretical and practical aspects of the origin, classification and geologic environments of metallic mineral deposits.

106. NON-METALLIC MINERAL DEPOSITS. 1 Q. Spring. 4 cr. 3 lectures, one 2-hour laboratory. Prerequisites, Geology 22c and 26. Study of the theoretical and practical aspects of the origin, classification and geologic environments of non-metallic deposits.

111ab. INVERTEBRATE PALEONTOLOGY. 2 Q. Autumn, winter. 4 cr. each quarter. 2 lectures, 4 hours laboratory. Prerequisites, Geology 11b, Zoology 10 or concurrent registration. An introduction to fossil remains of invertebrate animals with emphasis on morphology of skeletal parts and on classification.

S112. GEOLOGY IN MONTANA. 1 Q. Summer. 5 weeks. 3 cr. Prerequisite, consent of instructor. Designed primarily for teachers of natural science. Lectures will stress general earth science with emphasis on Montana. Most laboratory work will be out of doors. Regular major students in the department may not apply for credit in this course toward fulfillment of degree requirements.

120. ADVANCED PHYSICAL GEOLOGY. 1 Q. Spring. 4 cr. 3 lectures, 3 hours laboratory. Prerequisite, Geology 11a or consent of instructor. A detailed treatment of the physical processes operative at and beneath the earth's surface; the relationships between these processes and observable geologic phenomena.

121ab. STRUCTURAL GEOLOGY. 2 Q. Autumn, winter. 3 cr. each quarter. 2 lectures, one 3-hour laboratory. Prerequisites, Geology 22c and 26; Mathematics 21; Physics 11abc or 20abc. A detailed study of the structural features of the earth's crust and their analysis by means of geometric projections.

123. OPTICAL CRYSTALLOGRAPHY. 1 Q. Autumn. 4 cr. 2 lectures, 6 hours laboratory. Prerequisites, Geology 26; Physics 11abc or 20abc; Mathematics 16. Study of the use of the polarizing microscope and accessories; the theory of optical phenomena observed with the microscope; and the practical application of the phenomena in identifying mineral fragments and minerals in thin section.

124ab. PETROGRAPHY. 2 Q. Winter, spring. 4 cr. each quarter. 2 lectures, 6 hours laboratory. Prerequisites, Geology 26 and 123. Geology 124a deals with the optical examination and identification in thin section



of igneous minerals and rocks by use of the polarizing microscope. Geology 124b similarly treats metamorphic and sedimentary rocks. Advanced petrologic considerations are included in both 124a and 124b.

137. **ADVANCED GEOLOGIC PROBLEMS.** 1 Q. Any quarter. 2-5 cr. Prerequisites, senior standing and consent of instructor. Supervised investigation in any of the phases of geologic study in which the student has sufficient background to contribute original thought.

191. **SEMINAR.** 1 Q. Winter. 1 cr. Prerequisite, senior standing.  
FOR GRADUATES

201. **RESEARCH.** Any quarter. 2-4 cr. Directed research in stratigraphy, paleontology, mineralogy, petrology, mineral deposits and tectonic analysis.

216. **GEOLOGY OF COAL AND OIL.** 1 Q. Winter. 3 cr. Prerequisite, Geology 121ab or equivalent, or consent of instructor. Consideration of theories of origin, of stratigraphic and structural controls of occurrence, and of the general nature of some of the problems associated with development.

The following courses are given subject to demand:

222. **GEOTECTONICS.** 1 Q. Spring. 3 cr. 3 lectures. Prerequisite, Geology 121b. Analysis and synthesis of world-wide structural units. Offered in 1955-56 and alternate years.

225. **STRUCTURE OF MINERAL DEPOSITS.** 1 Q. Spring. 3 cr. 3 lectures. Prerequisite, Geology 121b. Classification of mineral deposits according to their structural environment and features, with especial reference to origin as related to tectonic control. Offered in 1956-57 and alternate years.

229. **PRINCIPLES OF STRATIGRAPHY.** 1 Q. Spring. 3 cr. 2 lectures, 3 hours laboratory. Prerequisites, Geology 35 and 121b; recommended preparation, Geology 111. Study of interrelationships of environments, tectonic controls, and facies; problems of correlation; isopach, facies, paleogeologic and paleogeographic maps. Laboratory or field.

299. **THESIS.** Any quarter. Credit variable. Maximum credit allowable 15.

## GRADUATE SCHOOL

Professor Gordon B. Castle, Dean

### DEGREES

The following advanced degrees are conferred by the University:

Master of Arts—Bacteriology, Botany, Chemistry, Economics, English, Foreign Languages, Geology, Health & Physical Education, History, Home Economics, Mathematics, Physics, Political Science, Psychology, Sociology, and Zoology.

Master of Science—Bacteriology, Botany, Chemistry, Geology, Mathematics, Physics, and Zoology.

Master of Science in Business Administration

Master of Science in Forestry

Master of Science in Pharmacy

Master of Science (combined major in Botany and Forestry)

Master of Arts in Journalism

Master of Arts in Education

Master of Science in Wildlife Technology

Master of Science in Wildlife Management

Master of Education

Master of Forestry

Master of Music Education

Doctor of Education

### REQUIREMENTS FOR ALL DEGREES

**ADMISSION.** A student who is a graduate of an accredited college or university may apply for admission to the graduate school. To apply, a student, must submit a properly completed application blank, an official transcript of all university work, and two letters of recommendation. Application blanks may be secured from the Registrar or from the Dean of the Graduate School.

Regular graduate standing is granted to students working toward advanced degrees whose scholastic records, prerequisites, and recommendations

are satisfactory. Provisional graduate standing is granted to students whose records are under question by reason of accreditation of the college from which they graduated, their scholastic deficiencies at the time of admission, or for considerable deficiencies in prerequisites. Students with provisional status may, after one quarter of satisfactory work, be advanced to regular graduate standing upon a review of their records.

The applicant must have completed the minimum requirements for an undergraduate major in the field selected for graduate study or an allied field acceptable to the staff of the major department and to the Dean of the Graduate School. The undergraduate preparation must be equivalent to the general requirements for the corresponding Bachelor's degree at Montana State University.

Students who hold a Bachelor's degree and who have completed 24 credits in Education may be admitted to graduate study in the School of Education. The Master of Arts in Education and the Master of Education are not conferred upon the same individual.

At the discretion of the department or school, qualifying examinations (oral and/or written) may be administered to aid in determining the applicant's preparation.

The Graduate Record Examination is required for all students starting graduate programs in the following areas: Bacteriology, Botany, Business Administration, Chemistry, Economics, Foreign Language, Geology, Health and Physical Education, History and Political Science, English, Mathematics, Music, Psychology, Physics, Sociology, and Zoology, and candidates for the Doctor's Degree in the School of Education. This examination is given during the fall quarter under the direction of a member of the University staff. A fee of \$7 is charged.

An undergraduate of senior standing who needs not more than nine quarter credits to complete the requirements for the Bachelor's degree may enroll in courses for graduate credit. A senior student in the school of Forestry who has earned a total of at least 192 undergraduate credits, but still lacks as many as 16 in his major field may be allowed to begin his graduate work. All requests for such enrollment must be submitted in writing to and be approved by the major advisor and the Dean of the Graduate School prior to registration.

Members of the Faculty of Montana State University above the rank of Instructor may not become candidates for advanced degrees from this University. This does not prevent such members taking advanced courses for transfer to other institutions.

**COURSES AND GRADES.** All courses listed in the University catalogue which have numbers over 100 are accepted for graduate credit. Courses numbered 200 or over are open to graduate students only.

An average of B must be obtained in all courses taken for graduate credit. Courses in which grades below C have been received are not accepted for graduate credit. A maximum of 8 credits of C or D work may be repeated.

**REGISTRATION.** At the time of registration for each quarter's work the student should consult with his advisor concerning his program for that quarter. The program must be approved by his advisor and the Dean of the Graduate School.

**CREDIT REQUIREMENTS.** Forty-five quarter credits of graduate work are required.

**STUDY LOADS.** Fifteen credits of graduate work per quarter are considered a normal study load.

In the summer quarter the normal credit load is 8 credits for a five-week term; 15 credits for the session. The maximum credit load which may be applied toward a degree for the five-week term is nine credits and for the full summer session is 16 credits.

Graduate students employed as assistants or fellows carry a reduced load, usually 10 credits per quarter.

Regular full-time employees of the University may carry a maximum of 5 credits per quarter upon approval of the administration.

**GRADUATE PROGRAMS.** A tentative program of courses to be pursued by the student during his graduate training must be planned during the student's first quarter of residence. A copy of this program must be filed in the Departmental office and with the Dean of the Graduate School.

**RESIDENCE.** The minimum residence requirement is enrollment for at least 30 weeks. To satisfy this requirement a minimum of one 10-week quarter's residence must be presented and the remainder may be satisfied by attendance at terms of 5 or more weeks.

Students transferring from Montana State College who have one quarter of graduate study in residence at that institution will be required to fulfill only two-thirds of the minimum residence requirement.

**TIME LIMIT FOR DEGREE.** All requirements for the degree must be completed within a period of 8 years. (This requirement is to apply to all students who register in the graduate school for the first time in the autumn of 1953 or later. Those graduate students who have enrolled prior to that date will be allowed to complete their requirements under the rule which was in force at the time of their first registration.)

A maximum of ten quarter credits of graduate work, and not to exceed three courses, taken prior to the 8-year period may be validated by examination. These credits must have been earned at either Montana State University or another accredited institution. All validation must be completed before the student is advanced to candidacy. Such validation must be reported to the graduate office by the student's advisor.

**TRANSFER OF CREDIT.** A student may transfer up to 12 graduate credits (but no residence) toward the fulfillment of the credit requirement for the degree. Students transferring from Montana State College are allowed to transfer a maximum of 15 graduate credits. Such transfer must be approved by the advisor and the Dean of the Graduate School.

**EXTENSION AND CORRESPONDENCE COURSES.** Up to 15 credits earned in extension courses of graduate caliber taught by members of the faculty of Montana State University and which have been approved by the Graduate committee may be accepted for the degree. Up to one-third of the residence requirement may be waived by the satisfactory completion of up to 15 credits in extension courses.

Correspondence courses will not be accepted for graduate credit.

**LANGUAGE REQUIREMENTS.** All graduate students working in departments at Montana State University which require a foreign language for the Bachelor's degree must satisfy the same requirement at the graduate level. The following departments require a foreign language—Bacteriology, Botany, Chemistry, English, Art, Mathematics, Foreign Languages, Physics, Zoology.

**ADMISSION TO CANDIDACY.** If the applicant's record is satisfactory (B average in courses registered for) during his first quarter of residence, he may be admitted to candidacy for the degree at the beginning of his second quarter. At this time, or at least two quarters prior to the conferring of the degree, the student must file in the graduate office an application for admission to candidacy in triplicate and submit a tentative title for his thesis or professional paper.

**ABSTRACT.** Each candidate for a degree is required to prepare an abstract of the thesis or professional paper. This abstract must be approved by his advisor and submitted to the Dean of the Graduate School.

**EXAMINATIONS.** Each candidate for a degree must pass examinations, which may be oral or written or both, covering his field of study. He will also be examined on his thesis or professional paper.

### SPECIAL REQUIREMENTS FOR DEGREES

**I. 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.

**MAJOR AND MINOR WORK.** A minimum of two-thirds of the 45 credits required for the Master's degree must be in the major field. The remainder of the work may be in studies approved by the advisor and by the Dean of the Graduate School.

**THESIS.** The subject of the thesis must be approved by the major professor and by the Dean of the Graduate School. By the end of the sixth week of the quarter in which the degree is to be conferred the candidate must submit to the office of the Graduate School an unbound temporary draft of the thesis as approved by his advisor. This copy is to be read by his examining committee and by any other person called upon, in order to suggest revisions before final typing. Final acceptance of the thesis is subject to the approval of a committee. This committee is appointed by the Dean of the Graduate School in consultation with the major professor, and must include at least two faculty members in the major field.

Three bound copies of the approved thesis must be placed on file in the office of the Graduate School.

**EXAMINATIONS.** Examinations covering the student's major field of work and the content of his thesis will be conducted by a committee appointed by the Dean of the Graduate School. These examinations may be taken only after the thesis is accepted.

**II. MASTER OF SCIENCE IN BUSINESS ADMINISTRATION.** Candidates for this degree must complete 45 credits of graduate work including not over 15 thesis credits. At least 50% of the credits taken in courses other than thesis must be in the 200 series. Bus. Ad. 201 is required of all can-

didates. The following courses or their equivalents are required for admission to graduate work in Business Administration: Business Administration 11ab, 129, 134, 151, and 185.

**THESIS.** The subject of the thesis must be approved by the major professor and by the Dean of the Graduate School. Fifteen credits in course 299, Thesis, are allowed. Three bound copies of the approved thesis must be placed on file in the office of the Graduate School.

**EXAMINATIONS.** Each student must pass comprehensive written and oral examinations covering the major field and the thesis subject.

**III. MASTER OF EDUCATION.** Candidates for this degree must complete 45 credits of graduate work, including three credits of Research (Education 201) and credit in Methods of Educational Research (Education 285 or equivalent).

**MAJOR AND MINOR REQUIREMENTS.** The candidate must complete a minimum of 15 residence credits of graduate work in Education. The total number of credits in Education taken as an undergraduate and as a graduate shall be not less than 54.

**PROFESSIONAL PAPER.** No thesis is required. The candidate must prepare a professional paper which represents the equivalent of a three credit course (Education 201). 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 deposited with the Dean of the School of Education.

**TEACHING EXPERIENCE.** The candidate must have completed two years of satisfactory teaching experience before the degree is conferred. At least 10 credits of course work offered must be completed following the two years' teaching experience.

**EXAMINATIONS.** Candidates must take examinations covering the course work completed and the professional paper. Arrangements for these examinations will be made by the Dean of the School of Education.

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

**MAJOR AND MINOR REQUIREMENTS.** 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.

**PROFESSIONAL PAPER.** 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 Graduate School for deposition in the library.

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

**V. MASTER OF MUSIC EDUCATION.** Candidates for this degree must present 45 credits in courses offered for graduate work of which at least 15 credits must be in courses in the 200 series.

**PROFESSIONAL PAPER.** 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 Music and by the Dean of the Graduate School. A bound copy of the paper must be submitted to the Graduate School for deposition in the library.

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

## THE DOCTOR'S DEGREE

The degree of Doctor of Education is offered in the School of Education. (The degree of Doctor of Philosophy may also be offered in the School of Education and in the various fields within the College of Arts and Sciences; programs will be announced as and when they are developed.) The requirements for the degree of Doctor of Education are stated below.

## THE DEGREE OF DOCTOR OF EDUCATION

The doctor's degree is conferred in recognition of breadth of scholarly attainment and demonstrated ability to investigate problems independently and effectively rather than the completion of a set curriculum in a certain period of residence. This program is designed for students who wish to prepare for teaching, administrative, or supervisory positions in Elementary or Secondary Education; for those preparing to teach in Colleges and Schools of Education and for those interested in pursuing research in Education.

Students enrolled in this program are expected to participate in activities other than organized course work which will provide both breadth of viewpoint and technical competence.

**ADMISSION TO THE DOCTORAL PROGRAM.** To be admitted to this program the student must have been granted 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. References will be requested.

**RESIDENCE REQUIREMENTS.** A minimum of nine quarters of residence graduate work beyond the Bachelor's degree are required. Forty-five quarter 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. For the purpose of doctoral work, a minimum of 10 quarter credits will be necessary to establish a quarter of residence.

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

An average of "B" will be required for residence 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.

**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.

**ADVISORY COMMITTEE.** During the first quarter of work on the doctoral program, an advisory committee of five members will be appointed by the Dean of the Graduate School from recommendations made by the Dean of the School of Education. Three members of this committee will be from the staff of the School of Education. The other two from staffs in cognate areas. During the first quarter of residence beyond the Master's degree, the prospective candidate will meet with his advisory committee to consider his proposed program. Acceptance of his program by the committee will constitute permission to continue his doctoral program.

When three academic quarters of work remain to be completed, the advisory committee will evaluate the candidate's progress and advise him concerning the remainder of his program.

**COMPREHENSIVE EXAMINATION.** After 100 credits of approved graduate course work (including work on the Master's degree) have been completed and in no instance less than 6 months before the degree is to be conferred the student must satisfactorily pass examinations on his selected fields in Education. These examinations may be oral or written or both. The examining committee will consist of the advisory committee and such other members of the staff as may be appointed by the Graduate Dean.

**ADVANCEMENT TO CANDIDACY.** At least 2 weeks before the comprehensive examination, the student must file formal application for candidacy for the doctor's degree. Application forms may be secured in the Graduate office. Upon successful completion of the comprehensive examination, the recommendation of the advisory committee and the approval of the Graduate Dean, the student will be advanced to candidacy for 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 deposit three bound copies of the dissertation with the Graduate School at least 4 weeks before the date of the final oral examination. Two copies of an abstract of the dissertation will be filed with the Graduate Office at the same time.

**FINAL EXAMINATION.** A final oral examination dealing primarily with the dissertation and its relationship to the candidate's fields of study shall be conducted by the advisory committee and such other members of the faculty as may be designated by the Dean of the Graduate School. This examination will be given not later than 10 days before the commencement at which the degree is to be conferred. The examination shall be announced 1 week ahead of its scheduled time and shall be open to all members of the faculty.

### GENERAL INFORMATION

**FEES.** The basic fee schedule for graduate students who are residents of the State of Montana is \$34.00 per quarter; for non-resident students \$59.00 per quarter. In addition, each student pays a general deposit fee of \$10.00 at the time of his first registration each year. The unused portion of this fee is refunded at the end of the year. In certain departments students may be required to pay an additional laboratory fee of \$25.00 per quarter. The student activity fee of \$10.00 per quarter is optional.

Exemptions from the out-of-state fee are available to graduate students who have outstanding undergraduate records.

**HOUSING.** Graduate students must have permission from the Office of the Dean of Students to be accommodated in the University dormitories. Information concerning rates can be secured from the Dean of Students.

Family Housing Units constitute temporary facilities available to married students and their families. The units are under the supervision of a Family Housing Project Manager. Information concerning availability or rates can be obtained by writing the Family Housing Office.

**ASSISTANTSHIPS AND FELLOWSHIPS.** Graduate Assistantships are offered in the majority of the departments in the College of Arts and Sciences and in the Schools of Education, Forestry, Music and Pharmacy. Assistants give not more than 15 hours of service per week to the University. They are permitted to register for a maximum of 10 credits of graduate work per quarter. Stipends are \$1000 (plus remission of certain fees) for the academic year.

#### FELLOWSHIPS:

**FORESTRY.** Three fellowships carrying a stipend of \$1200 for nine months are available in the School. Fellows carry on assigned research with a member of the staff for half time. The remainder of the fellow's time is available for work toward a Master's degree.

**WILDLIFE.** Four fellowships are available in the Montana Cooperative Wildlife Research Unit. These fellowships carry a stipend of \$1000 per year. The recipients of these fellowships work on a research program leading to a Master's degree. The program requires two years for completion.

## HEALTH AND PHYSICAL EDUCATION

Professors Harry F. Adams, George P. Dahlberg, Agnes L. Stoodley; Associate Professor Charles F. Hertler (Chairman); Assistant Professors Edward S. Chinske, Forrest Cox, Jerry Williams, Vincent Wilson; Instructors George W. Cross, Fred Naumetz, Robert M. Oswald, Jack Zilly, Robert J. Zimny.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN HEALTH AND PHYSICAL EDUCATION.** In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in Health and Physical Education. Fifty-three credits (men), fifty-one credits (women) in Health and Physical Education in addition to Health and Physical Education 15abc, 16abc, 135, 153; General 13abc. Pre-physical therapy students and students minoring in biological sciences take Zoology 10 in place of General 13abc.

The following courses must be completed by all students: Health and Physical Education 19, 20, 32, 36, 45c, 70, 121, 137, 141, 148, 150.

Women students also take: Health and Physical Education 28, 45ab, 63abc.

Men students also take: Health and Physical Education 40, 60, 61ab, 62.

Students may elect to take 5 quarters (23-25 credits) in one language or may elect to substitute for the language 22-23 credits in the following courses: Speech 20; Sociology (8 cr.) 16, 17, 100, 129, 170; Psychology 13; Home Economics 24. All work must be fulfilled in the choice elected by the student. Partial fulfillment in language may not be combined with partial work in other courses to meet this requirement.

## FOR UNDERGRADUATES

11abc, 12abc. FRESHMAN AND SOPHOMORE PHYSICAL EDUCATION (MEN). 6 Q. Autumn, winter, spring, freshman and sophomore years. Summer, swimming only. 1 cr. each quarter. Practical work in swimming, conditioning exercises, tumbling and apparatus work, competitive games, track, wrestling, tennis, fencing, volleyball, bowling, skiing, golf, and adapted activities. No student will be given the final grade in the last quarter of this course until he has passed the elementary examination in swimming. A total of not more than 6 credits in 11abc and 12abc will be accepted in addition to the 180 credits required for graduation.

11abc, 12abc. FRESHMAN AND SOPHOMORE PHYSICAL EDUCATION (WOMEN). 6 Q. Autumn, winter, spring, freshman and sophomore years. 1 cr. each quarter. Final grade for the sixth quarter will be withheld until the University swimming test is passed. Both elementary and advanced work in: Basketball, softball, speedball, volleyball, archery, badminton, bowling, fencing, golf, recreative games, riflery, skiing, tennis, tumbling, posture training, calisthenics, swimming and diving, life saving, rhythmic swimming. Basic rhythms, modern dance, folk and square dancing are offered. A total of not more than 6 credits in 11abc and 12abc will be accepted in addition to the 180 credits required for graduation.

14abc. ACTIVITY SKILLS. 3 Q. Autumn, winter, spring. 14a, b or c. Summer. 1 cr. Students may enter any quarter. Prerequisites, 11abc, 12abc, or consent of instructor. This course intended to give students an opportunity to become more proficient in basic skills by participating in activity classes of 11abc and 12abc. Students may not repeat an activity in which they have received credit and may not register in Varsity Sports for credit in this course. A total of not more than 3 credits will be accepted in addition to this course. Credits earned will be in addition to the 180 required for graduation.

15abc, 16abc. FRESHMAN AND SOPHOMORE PHYSICAL EDUCATION (MEN MAJORS AND MINORS). 6 Q. Autumn, winter, spring, freshman and sophomore years. Summer, swimming only. 1 cr. each quarter. 15abc offered even years. 16abc offered odd years. (15a) Conditioning exercises. (15b) Volleyball and badminton. (15c) Wrestling. (16a) Tumbling and Apparatus, (16b) Swimming, (16c) Individual Sports. NOTE: This course will satisfy the University requirement of six quarters of required Physical Education. Students who elect to take varsity sports will register for such sports as P.E. 11abc, 12abc. Such varsity participation will be in addition to the required work in 15abc and 16abc. Credits earned in P.E. 11abc, 12abc, 15abc or 16abc will be in addition to the 180 credits required for graduation.

15abc, 16abc. FRESHMAN AND SOPHOMORE PHYSICAL EDUCATION (WOMEN MAJORS AND MINORS). 6 Q. Autumn, winter, spring, freshman and sophomore years. 1 cr. each quarter. Object to develop skill and familiarity with a variety of physical education activities. (15a) Sports-Speedball or Hockey. (15b) Tumbling, (15c) Individual-Dual Sports. (16a) Officiating Volleyball, (16b) Officiating Basketball, (16c) Swimming. These courses will satisfy the University requirement of six quarters or required physical education. Students needing more instruction in Team Sports and in Dance are urged to register for such activities under P.E. 11abc, or 12abc. Credits earned in P.E. 11abc, 12abc, 14abc, 15abc or 16abc will be in addition to the 180 credits required for graduation.

19. INTRODUCTION TO PHYSICAL EDUCATION. 1 Q. Winter. Summer. 3 cr. Prerequisite, major or minor in Physical Education or consent of instructor. Principles of physical education, historical development, present application; contemporary organizations in the field; relationships with other fields and with education in general. Designed as an orientation course for prospective majors and minors.

20. HUMAN ANATOMY. (Students who have taken the former course H. & P.E. 20b may not receive credit in this course.) 1 Q. Autumn. Summer (odd years). 5 cr. Prerequisite, sophomore standing. The systems of the body and the structure of organs composing these systems.

28. PERSONAL HEALTH PROBLEMS (WOMEN). 1 Q. Winter. 2 cr. Prerequisite, major or minor in Physical Education or consent of instructor. Fundamentals of healthful living, with particular emphasis upon problems which frequently arise in connection with the teaching of physical education.

32. FIRST AID. 1 Q. Autumn. Winter. Summer (odd years). 2 cr. Recognition and treatment of common injuries. Red Cross certification may be secured on completion of the course.

36. TECHNIQUES OF TEACHING SWIMMING. 1 Q. Spring. 2 cr. Prerequisites, sophomore standing and consent of instructor. Methods of teaching swimming and use of tests for classifying students.

40. CARE AND PREVENTION OF ATHLETIC INJURIES. 1 Q. Winter. Summer (even years). 2 cr. Prerequisite, for majors, Health & Physical Education 121; for others, consent of instructor. Concurrent registration in H. & P.E. 121 and this course acceptable. Common athletic injuries, their causes, prevention and care. Practical work in bandaging and wrapping.

45abc. DANCE METHODS AND MATERIALS. 3 Q. Autumn, winter, spring. 2 cr. each quarter. Prerequisite, sophomore standing. (a) Basic dance. (b) Tap and social dance. (c) Folk dancing and square dance.

58. ADVANCED COACHING TECHNIQUES. 1 Q. Summer. One week. 1 cr. Prerequisite, sophomore standing. Designed as an intensive training course in special techniques of coaching football and basketball and in athletic training. (Special coaching school).

59. COACHING OF BASEBALL. 1 Q. Spring. 2 cr. Prerequisite, sophomore standing.

60. COACHING OF BASKETBALL. 1 Q. Autumn, 4 cr. Summer, 2 cr. Open to junior men. Theory and practice in handling work in basketball.

61ab. COACHING OF TRACK. 2 Q. Winter, spring. 2 cr. each quarter. Summer, 61a or b. 2 cr. Open to junior men. (a) Theory. (b) Practice.

62. COACHING OF FOOTBALL. 1 Q. Spring. 4 cr. Summer. 2 cr. Open to men of at least sophomore standing.

63abc. TEACHING OF SPORTS FOR WOMEN. 3 Q. Autumn, winter, spring. 2 cr. each quarter. Summer, 63a, b or c. Prerequisite, sophomore standing. Course includes methods and materials. (a) Volleyball, tennis. (b) Basketball, badminton. (c) Softball, archery.

70. TEACHING PHYSICAL EDUCATION ACTIVITIES. 1 Q. Autumn. Winter. Spring. Summer. 1-2 cr. Prerequisite, H. & P.E. 15abc, 16abc or consent of instructor. Assignment of teaching projects in college classes, under supervision.

#### FOR UNDERGRADUATES AND GRADUATES

111. WATER SAFETY AND LIFE SAVING. 1 Q. Spring. Summer (odd years). 2 cr. Prerequisite, Red Cross Senior Life Saving Certificate. Instructor's course in life saving and water safety Red Cross Instructor's Certificate awarded upon successful completion of requirements, providing student has reached 19th birthday.

121. APPLIED ANATOMY. (Credit will not be allowed to students who have taken the recent or former course H. & P.E. 20a or 21.) 1 Q. Winter. Summer (odd years). 5 cr. Prerequisite, junior standing. A study of the bones, muscles and joints of the body. Consideration is given to bodily movements, joints mechanics and the action of muscles in relation to physical education and activities of daily life.

132. INSTRUCTOR'S FIRST AID. 1 Q. Spring. Summer (odd years). 2 cr. Prerequisite, 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 student has reached 20th birthday.

134. PLAYGROUNDS. 1 Q. Autumn. 4 cr. Prerequisite, junior standing. History, construction, equipment, problems, management, methods of conducting and practical working supervision of playgrounds; theory of play.

135. METHODS OF TEACHING PHYSICAL EDUCATION. 1 Q. Autumn. Summer (even years). 4 cr. Prerequisite, junior standing or consent of instructor. Required of all teaching majors and minors in Health and Physical Education. Consideration of materials suitable for the junior and senior high school programs. Demonstrations and practice in techniques of teaching activities using mass class and squad organization; techniques of lesson planning. Students may not receive credit for this course and Educ. 135.

136. KINESIOLOGY. 1 Q. Winter. Summer (odd years). 5 cr. Prerequisite, H. & P.E. 121. An advanced study of muscle action and joint mechanics of the body.

137. PROGRAMS IN PHYSICAL EDUCATION (formerly School Gymnastics). 1 Q. Spring. Summer (even years). 4 cr. Prerequisite, H. & P.E. 135. Theory and practice in selection and teaching of physical education for children of various age levels. Attention given to factors of growth and development as they are related to physical education.

141. PREVENTIVE AND CORRECTIVE PHYSICAL EDUCATION. 1 Q. Spring. Summer (odd years). 5 cr. Prerequisite, H. & P.E. 121. Methods of preventing and detecting the more common physical defects which come to the attention of the physical educator and consideration of the possible follow-up programs the doctor may advise.

148. PHYSIOLOGY OF EXERCISE. 1 Q. Winter. Summer. Given in summer of 1955 and alternate summers. 2 cr. Prerequisite, junior standing.



The physiological effects of the different types of exercises on the functions of the human body.

150. ORGANIZATION AND ADMINISTRATION. 1 Q. Winter. Summer (odd years). 4 cr. Open to junior major students. Principles and policies for the organization and administration of high school physical education departments. Management of the physical education plant.

151. CURRICULUM CONSTRUCTION. 1 Q. Winter. 3-4 cr. Prerequisite, H. & P.E. 137. Classification and analysis of physical education activities; criteria for selection of activities; construction of programs for specific situations.

152. INTRODUCTION TO PHYSICAL THERAPY. 1 Q. Spring. 4 cr. Prerequisite, H. & P.E. 141 or concurrent registration. Theory and practice of massage. A more detailed study of the treatment of defects which come within the field of physical education.

153. HEALTH EDUCATION. 1 Q. Spring. Summer (even years). 4 cr. Open to junior students. Required of all teaching majors and minors in Health and Physical Education and of all students seeking elementary certification. School health problems in the areas of health services, healthful school environment and health education.

S154. PROBLEMS IN PHYSICAL EDUCATION (WOMEN). 1 Q. Summer. 2-4 cr. Prerequisites, junior standing and equivalent of teaching minor in physical education. Class and department management, policies. Problems involved in competition, intramurals, GAA's, teaching of sex hygiene, camping activities, recreational leadership. Individual projects.

160. SEMINAR. 1 Q. Autumn. Winter. Spring. Summer. 1-3 cr. each quarter. Prerequisites, junior standing and consent of instructor. A study of the problems connected with the administration of community and school health and physical education programs by means of reviews of current literature and topical discussions. A maximum of 3 credits may be earned in this course.

S161. SURVEY OF PROFESSIONAL LITERATURE. 1 Q. Summer. 2 cr. Prerequisites, junior standing and equivalent of teaching minor in physical education. Survey of recent research, current developments in program content, and in tests and measurements. Study of new and useful magazines and books.

162. CLINICAL TRAINING IN PHYSICAL THERAPY. 1 Q. Any quarter. 1-4 cr. Maximum of 4 credits. Prerequisites, H. & P.E. 121, 141, and consent of instructor. Practical experience in local physical therapy centers.

165. INTRODUCTION TO TESTING. 1 Q. Autumn. Summer (even years). 3 cr. Prerequisite, senior standing. Orientation to testing and measuring, administrative uses of tests, elementary statistical techniques and procedures.

170abc. RECREATIONAL LEADERSHIP. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, junior standing. Students may enter any quarter. (a) Philosophy of recreation, theory and practice of group leadership and program media skills in relation to various age groups. (b) An investigation of the forces, resources, and interests required to provide a total community recreation program. (c) Philosophy of camping, theory and practice of group leadership and recreational skills in relation to organized camping. Administration under joint supervision with the Department of Sociology and Anthropology. Students may not receive credit for this course and the identical course Soc. 170abc.

#### FOR GRADUATES

203. ADVANCED TESTS AND MEASUREMENTS. 1 Q. Winter. Summer (odd years). 4 cr. Prerequisite, H. & P.E. 165 or equivalent. Study of specific tests for evaluation of organic, neuromuscular, psychological and social outcomes. Practice in construction, application of tests and interpretation of results.

204. RESEARCH. Any quarter. 2 cr. May be repeated up to a maximum of 4 credits. The application of scientific methods in Health, Physical Education and Recreation. Practice in employing research techniques in planning and developing individual projects.

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

## HISTORY AND POLITICAL SCIENCE

Professors Edward E. Bennett, Oscar J. Hammen, J Earll Miller, Robert T. Turner (Chairman), Melvin C. Wren; Associate Professor Ellis L. Waldron; Assistant Professors Jules A. Karlin, Thomas Payne, John T. Schlebecker.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN HISTORY AND POLITICAL SCIENCE.** In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in History, Political Science, or History and Political Science. A student may offer a combined major with a minimum of 50 credits in History and Political Science or he may offer either History or Political Science with a minimum of 45 credits. In any case twenty of these credits must be selected from courses numbered above 100, including 104. History 12 and Political Science 14 are recommended to all majors not in the combined Law-History and Political Science program.

History majors must elect either American or European History as their area of concentration. They must complete at least ten hours in the alternative field as well as a minimum of twelve hours of Political Science.

Political Science majors will be required to complete a minimum of nine hours of European and eight hours of American History. Specialization is possible in public law, international relations, political theory, or public administration.

Students with permission, may offer credit earned in Economics 103, 104, 105, 161 and in Journalism 190 in partial fulfillment of the major requirements for a degree. 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 language may be required. Every student must pass a Senior Comprehensive examination.

To earn the 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 department requirements. 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 of 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 13abc, History 21abc, and Political Science 17ab 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 21 hours from the offerings of the Department with Political Science 106ab, 116ab and 136 and also History 119 and 127ab as required or highly recommended courses. In lieu of or in addition to the above, electives may be chosen from Economics 104 and 105, History 111, Political Science 105ab, 118, 120ab, 124, 130, 134, 137, and 143abc, depending on the student's preparation and objectives.

### HISTORY

#### FOR UNDERGRADUATES

12ab. **POLITICAL AND ECONOMIC DEVELOPMENT OF MODERN EUROPE.** 2 Q. Autumn, winter. 5 cr. each quarter. Open to all students. Students may enter either quarter. (a) 1500-1815. The beginning of Modern Europe; the Protestant Revolt; the Age of Louis XIV; the rise of Prussia and of Russia; the Old Regime; the Industrial and the French Revolutions; (b) 1815-1949. Liberalism versus Reaction; Nationalism; Imperialism; World Politics; the First and Second World Wars.

13abc. **ENGLISH HISTORY.** 3 Q. Autumn, winter, spring. Summer. 3 cr. each quarter. Prerequisite, sophomore standing. Students may enter any quarter. The political, economic and social history of Great Britain. (a) to 1485; (b) 1485-1715; (c) 1715-1902.

15ab. **THE ANCIENT WORLD.** 2 Q. Autumn, winter. 4 cr. each quarter. Prerequisite, sophomore standing. Students may enter either quarter. (a) Civilizations of the Ancient Near East, the Greek city-states and the Empire of Alexander. (b) The decadence of the Hellenistic world, the rise and decline of Rome and the Eastern Mediterranean civilizations through the era of Justinian. (Students with college credit in History of Greece are not eligible for Course 15a and those with credit in Roman History are not eligible for 15b.)

21abc. **UNITED STATES HISTORY.** 3 Q. Autumn, winter spring. 4 cr. each quarter. Summer. 2 or 4 cr. Prerequisite, sophomore standing. Students may enter any quarter. (a) 1600-1815. Colonial beginnings and progress; the Revolution, Confederation and Constitution; early political development; the War of 1812; (b) 1815-1890. The new nationalism; sectional-

ism; Civil War and Reconstruction; the New West; agricultural and industrial development; (c) 1890-1951. Capitalism and constitutional changes; the Progressive Movement; World War I; the Depression and the New Deal; World War II.

29. FRENCH REVOLUTION AND NAPOLEONIC ERA. 1 Q. Spring. 4 cr. Prerequisite, sophomore standing. Political, economic and social developments in France and the international reactions to the revolution.

30ab. EUROPE IN THE 19th CENTURY. 2 Q. Autumn, winter. Summer. 3 cr. each quarter. Students may enter either quarter. Prerequisite, sophomore standing. The internal political, economic and social development of France, Germany, Austria, and Italy. (a) 1815-1870. (b) After 1870.

33. MEDIEVAL EUROPE. 1 Q. Autumn. 3 cr. Prerequisite, sophomore standing. The political, economic and social development of Europe from the barbarian invasions to 1300.

34. RENAISSANCE AND REFORMATION. 1 Q. Spring. 3 cr. Prerequisite, sophomore standing. The political, economic and social development of Europe from 1300 to 1600.

35. THE OLD REGIME. 1 Q. Winter. 3 cr. Prerequisite, sophomore standing. The political, economic, and social development of Europe from 1600 until the outbreak of the French Revolution.

#### FOR UNDERGRADUATES AND GRADUATES

101. AMERICAN FRONTIERS. 1 Q. Autumn. 3 cr. Prerequisite, course 21abc. A survey of frontiers in America from the first settlements on the continent to the end of the 19th century. Emphasis is placed on the political, economic and social factors of frontier life and the reaction of the frontier upon American and European history.

102ab. HISTORY OF THE NORTHWEST. 2 Q. Winter, spring. 3 cr. each quarter. Prerequisite, course 21abc. Students may enter either quarter. The most significant factors in the history of the northwestern states and their relation to the nation.

103. THE EARLY 20th CENTURY (1900-1933). 1 Q. Spring, 3 cr.; Summer, 4 cr. Prerequisites, junior standing and a college course in modern European history. Internal development of Britain and of the continental powers. Colonial development and international rivalry prior to the First World War. The War and its aftermath.

104. METHODS AND MATERIALS. 1 Q. Autumn. Spring. Summer. 3 cr. Prerequisites, junior standing with 25 credits in History and Political Science. Methods of investigation, evaluation, and synthesis in historical writing, with a survey of the technical literature of the subject. Students with credit in Political Science 104 may not register for this course.

105abc. PROBLEMS IN HISTORY AND IN POLITICAL SCIENCE. 3 Q. Autumn, winter, spring. Summer. 2-4 cr. each quarter. Prerequisites, junior standing with 25 credits in History and Political Science. Study or research in fields selected according to the needs and objectives of the individual student. Students may register for a maximum of eight credits and may not receive credit for this course and for Political Science 105.

110. THE BRITISH EMPIRE. 1 Q. Spring. 4 cr. Prerequisites, junior standing and course 12b or 13abc. English exploration and colonization. The First British Empire. Developments in the 19th century. The Empire today.

111. MEDIEVAL CIVILIZATION. 1 Q. Spring. 4 cr. Prerequisite, junior standing. Institutional, social, and cultural progress in the Middle Ages.

113. REPRESENTATIVE AMERICANS. 1 Q. Spring. Summer. 4 cr. Prerequisite, course 21abc. Studies in American biography.

114ab. RUSSIA AND POLAND. 2 Q. Autumn, winter. 4 cr. each quarter. Prerequisites, junior standing and a college course in modern European history. Students may enter either quarter. (a) Beginnings of Russia. Early expansion. Russia and the West to 1800. (b) Russia in the 19th and 20th centuries.

117ab. HISTORY OF THE FAR EAST. 2 Q. Winter, spring. 4 cr. each quarter. 117a, Summer, 3 cr. Prerequisites, junior standing and a college course in Modern European History. Students may enter either quarter. The political, economic, and social aspects of the modernization of China, Japan, and selected minor states. The conflicting interests of the Great Powers in the East. World War II.

119. CONSTITUTIONAL HISTORY OF THE U. S. 1 Q. Spring. 4 cr. Prerequisite, two quarters of United States History. The origin and growth of the constitution in relation to the institutional development of the United States.

121ab. CENTRAL EUROPE. 2 Q. Winter, spring. 4 cr. each quarter. Students may enter either quarter. Prerequisites, junior standing and a college course in modern European history. The growth and development of the states of Central Europe and the Balkans since early modern times.

122. MONTANA HISTORY. 1 Q. Winter. Summer. 3 cr. Prerequisite, 2 quarters of United States History. Early settlements, gold mining, the development of territorial and state government, silver and copper mining, agriculture, the changes in economic and social conditions.

123abc. HISPANIC-AMERICAN HISTORY. 3 Q. Autumn, winter, spring. 4 cr. each quarter. Prerequisite, junior standing. Students may enter any quarter. (a) The European background; the political and economic development of Spain and Portugal to the foundation of the Latin American colonies. Pre-conquest Latin America. (b) The Spanish and Portuguese colonies; the revolutionary period and the foundation of present-day Latin American states. (c) The development of Latin American states in the 19th and 20th centuries.

125. ECONOMIC HISTORY OF THE UNITED STATES. 1 Q. Autumn. 4 cr. Prerequisites, junior standing and two quarters of United States History. Colonial economy; the expansion of the United States; industrial and pioneer economics; the heyday of laissez-faire; the agrarian movement; war and post-war prosperity; the great depression and recovery.

126. ECONOMIC HISTORY OF EUROPE. 1 Q. Autumn. Summer. 4 cr. Prerequisites, junior standing and a course in modern European history or Economics 14ab. The economic development of Europe from the early Middle Ages to the present time.

127ab. ENGLISH CONSTITUTIONAL HISTORY. 2 Q. Autumn, winter. 4 cr. each quarter. Prerequisite, course 13ab. (a) English institutional development to the end of the Middle Ages; (b) English institutions since the Middle Ages.

128. AMERICAN COLONIAL HISTORY. 1 Q. Winter. 4 cr. Prerequisite, two quarters of United States History. Discovery and settlement; development of colonial society; government at home and in England; the causes, character, and consequences of the American Revolution.

129. SOCIAL AND CULTURAL HISTORY OF THE UNITED STATES. 1 Q. Autumn. Summer. 4 cr. Prerequisite, two quarters of United States History. An examination of attitudes in political, economic, and social questions and of appreciation of amusements and esthetics.

131. RECENT AMERICAN HISTORY. 1 Q. Spring. Summer. 4 cr. Prerequisite, two quarters of United States History. The internal affairs and external relationships of the United States in the 20th century.

132. CONTEMPORARY EUROPEAN HISTORY. 1 Q. Spring. 4 cr. Summer. 2 or 4 cr. Prerequisites, junior standing and a college course in modern European history. The internal affairs and the external relationships of the principal European states since 1933.

139. HISTORY OF CANADA. 1 Q. Autumn. 4 cr. Prerequisites, junior standing and either History 12b, 13c or 21a. 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.

146. MODERN WAR AND WESTERN SOCIETY. 1 Q. Spring. 3 cr. Prerequisite, junior standing. 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.

147. ECONOMIC HISTORY OF ENGLAND. 1 Q. Autumn. Summer. 4 cr. Prerequisites, junior standing and course 12ab or course 13abc. The economic and social background and development of modern England; the growth of Empire

165. HISTORY OF MEXICO SINCE INDEPENDENCE. 1 Q. Spring. 4 cr. Prerequisites, junior standing and 8 credits in history. History 123abc recommended (May be taken concurrently). Political, economic, and cultural development of Mexico since 1820; international relations; present conditions and problems. Not offered 1956.

#### FOR GRADUATES

200. SEMINAR IN AMERICAN HISTORY. 3 Q. Autumn, winter, spring. Summer. Credit variable. Open to graduates who have 30 credits in the department and History 104. A study of special problems in American History.

201. SEMINAR IN EUROPEAN HISTORY. 3 Q. Autumn, winter, spring. Summer. Credit variable. Prerequisites, 30 credits in the department, and History 104. A study of special problems in European history.

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

## POLITICAL SCIENCE

## FOR UNDERGRADUATES

14. INTRODUCTION TO GOVERNMENT. 1 Q. Spring. 5 cr. Open to all students. An introductory study of the theories and practices of government in the world today. The nature of the state, constitutions, democracy, totalitarianism, civil rights, and pressure groups.

17ab. AMERICAN POLITICAL INSTITUTIONS. 2 Q. Autumn, winter, spring, summer. 4 cr. each quarter. Prerequisite, sophomore standing. (a) The constitutional bases of the national government; instrumentalities of popular control; organizations of the national legislative, executive, administrative and judicial agencies. (b) The functions and services of government at the national, state, and local levels; organization of state and local government. (Students who have credit in the former Political Science 17 are not eligible for 17a and those who have credit in the former Political Science 18 are not eligible for 17b.)

20. COMPARATIVE GOVERNMENT. 1 Q. Autumn. 4 cr. Prerequisites, sophomore standing and either course 12b, 14 or 17a. A study of representative types of government; constitutional beginnings, organization, methods of legislation and administration.

45. POLITICAL PARTIES AND ELECTIONS. 1 Q. Autumn. 4 cr. Summer. 3 cr. Prerequisite, Pol. Sci. 14 or 17a or 2 quarters of History 21abc. The American party system, the organization and work of American political parties, the conduct and control of nominations and elections, and some comparisons with the composition and process of European political parties.

60. INTERNATIONAL RELATIONS. 1 Q. Winter. 4 cr. Prerequisite, sophomore standing. 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.

## FOR UNDERGRADUATES AND GRADUATES

104. METHODS AND MATERIALS. 1 Q. Autumn. Spring. Summer. 3 cr. Prerequisites, junior standing with 25 credits in history and political science. Methods of investigation, evaluation and synthesis in Political Science with a survey of the technical literature of the subject. Students who have secured credit in History 104 may not register for this course.

105abc. PROBLEMS IN HISTORY AND IN POLITICAL SCIENCE. 3 Q. Autumn, winter, spring. Summer. 2-4 cr. each quarter. Prerequisites, junior standing with 25 credits in History and Political Science. Study or research in fields selected according to the needs and objectives of the individual student. Students may register for a maximum of eight credits and may not receive credit for this course and for History 105abc.

106ab. INTERNATIONAL PUBLIC LAW. 2 Q. Autumn, winter. 3 cr. each quarter. 106a required for registration in 106b. Prerequisite, junior standing and 15 credits in the department. The law of nations in relation to peace, war and neutrality.

107ab. DIPLOMATIC HISTORY OF EUROPE. 2 Q. Autumn, winter. 3 cr. each quarter. Prerequisites, junior standing and 12 credits in the department. Students may enter either quarter. International relations and world politics from the Congress of Vienna to World War I.

108. PRESENT WORLD PROBLEMS. 1 Q. Spring. 3 cr. Summer. 4 cr. Prerequisite, 12 credits in the department. Problems leading to or arising out of the Second World War.

109. AMERICAN POLITICAL PROBLEMS. 1 Q. Autumn. 4 cr. Summer. 3 cr. Prerequisite, course 21bc or 17ab. Present day political problems, such as governmental reorganization, taxation and budget, states' rights, and powers of Congress and the Chief Executive.

115ab. THE DEVELOPMENT OF POLITICAL THOUGHT. 2 Q. Autumn, winter. 4 cr. each quarter. Prerequisites, junior standing and 12 credits in the department. 115a is recommended for 115b. (a) The development of Western political thought from ancient origins to the early modern period. (b) Western political thought from its early modern roots to the twentieth century. (Students who have credit in the former 115 are not eligible for 115ab.)

116ab. PUBLIC ADMINISTRATION. 2 Q. Autumn, winter. 4 cr. each quarter. Summer. 3 cr. Prerequisites, junior standing and either course 14 or 17ab. (a) The structure of the American system of public administration, its constitutional, legal, and political setting. The processes of public management, including personnel and finance; democratic means of holding administration accountable. (b) Problems and techniques of public administration illustrated through the study of case materials.

118. PUBLIC PERSONNEL ADMINISTRATION. 1 Q. Spring. 4 cr. American system of public personnel administration; recruitment, selection, promotion, training, classification, and service ratings. Some attention to state and local and to European personnel systems.

120a. AMERICAN FOREIGN RELATIONS. 1 Q. Winter. 4 cr. Prerequisite, junior standing. History 21bc desirable. The machinery of American diplomacy, inter-relation of geo-politics, national policy, military policy and diplomacy; basic American foreign policies and their development to the end of the 19th century.

120b. AMERICAN FOREIGN RELATIONS. 1 Q. Spring. 4 cr. Prerequisites, junior standing and History 21c or 120a. The United States in world affairs since 1900. Theodore Roosevelt and his era; Dollar Diplomacy, Woodrow Wilson and World War I; the diplomacy of normalcy; Franklin Roosevelt and World War II; the postwar eras.

124. INTERNATIONAL ORGANIZATIONS. 1 Q. Spring. Summer. 3 cr. Prerequisite, junior standing. The efforts for and machinery of international cooperation; the Hague tribunal; the Pan-American Union; the International Labor Office; the World Court; the League of Nations; the UN.

130. AMERICAN POLITICAL THOUGHT. 1 Q. Spring. 4 cr. Summer. 3 cr. Prerequisites, junior standing and either 115ab, 3 credits from 14 and 17ab, or History 21bc. American political thought, both systematic and popular, from colonial origins to the present.

133ab. THE AMERICAN CONSTITUTIONAL SYSTEM. 2 Q. Winter, spring. 3 cr. each quarter. Prerequisite, 17ab or 21bc; 133a required for 133b. The Constitution of the United States in the jurisprudence of the Supreme Court; jurisdiction of the courts; fundamental principles of constitutional law; judicial interpretation; federal relations.

134. THE PRINCIPLES OF ADMINISTRATIVE LAW. 1 Q. Winter. 3 cr. Prerequisites, junior standing and Pol. Sci. 17a. Administrative law in the United States with reference to other countries. Administrative authorities, the scope and the limitations of their powers, remedies, judicial control of administrative action.

136. GOVERNMENT REGULATION OF BUSINESS. 1 Q. Spring. 4 cr. Prerequisites, junior standing and Pol. Sci. 17a. The necessity for and the theories of government regulation; regulation in practice by legislation, by commission, and by judicial decision; the government in business.

137. ELEMENTARY JURISPRUDENCE. 1 Q. Spring. 3 cr. Prerequisite, Pol. Sci. 14 or 17a. The development of legal institutions; the relation of law and legal institutions to dominant political and philosophical ideas; law as an instrument of social control.

143abc. PROBLEMS OF MONTANA GOVERNMENT. 3 Q. Autumn, winter, spring. 4 cr. each quarter. Prerequisites, 12 hours in the department, including 17ab, and the consent of the instructor. (a) Problems in state government, other than legislative. (b) Problems in state government, legislative. (c) Problems in local government. Particular agencies and functions of state and local government will be selected for research and field study; visits to governmental agencies; discussions with public officials and with representatives to citizen organizations. Students may earn no more than 8 credits. 143b given in Legislative years.

155ab. POLITICAL GEOGRAPHY. 2 Q. Autumn, winter. 3 cr. each quarter. The nature and scope of geopolitics. A geopolitical analysis of the United States and of the greater states of Europe and Asia. Geopolitics and the Cold War.

#### FOR GRADUATES

203. SEMINAR IN POLITICAL SCIENCE. 3 Q. Autumn, winter, spring. Summer. Credit variable. Prerequisites, graduate standing with 30 credits in the department and History 104. A study of special problems in political science.

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

## HOME ECONOMICS

Professors Helen Gleason, Lendal H. Kotschevar (Chairman), Anne C. Platt; Assistant Professors Helen Hollandsworth, Sarah W. Littlefield; Instructors Naomi Lory, Artie Dawes.

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN HOME ECONOMICS. In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in Home Economics. Fifty or more credits in Home Economics, selected from courses

listed under one of the following groups, and in addition courses in each group required from other departments.

1. GENERAL: Home Economics 17abc, 18, 80, 82, 119, 120, 122, 124, 125, 127, 128, 129, 131, 138. In addition a student must take Chemistry 11abc or 13ab, 19; Art. 31abc.
2. TEACHING: Home Economics 17abc, 18, 80, 82, 119, 120, 122, 124, 125, 127, 128, 129, 131, 133, 134, 135, 138, 163, 183. In addition a student should select teaching minors acceptable to the School of Education and must take the following: Chemistry 11abc or 13ab, 19; Education 20, 23, 25, 26; Art 31abc or General 15abc are advised. These courses prepare teachers for vocational Home Economics in reimbursed schools.
3. INSTITUTIONAL MANAGEMENT: Home Economics 17abc, 80, 119, 122, 123, 125, 133, 134, 135, 138, 198. A major student should also select one or more from the following: Home Economics 124, 127, 128, 129, 131. In addition, to qualify for an internship, the following are required: Chemistry 11abc or 13ab, 19, 103; Business Administration 11a, Bacteriology 19; Zoology 24; Sociology 16; Economics 14ab; and a minimum of 5 credits in Education.
4. TEXTILES AND CLOTHING: Home Economics 17abc, 18, 24, 80, 82, 119, 120, 124, 127, 128, 129, 131, S86, 163. In addition a student must take Chemistry 11abc, or 13ab, 19; and at least 30 credits in Art.

#### FOR UNDERGRADUATES

17abc. INTRODUCTION TO HOME ECONOMICS. 3 Q. Autumn, winter, spring. 5 cr. each quarter. Students may enter any quarter. (a) Education for personal and family life today. (b) Selection and preparation of food. (c) Selection, planning, and construction of clothing.

18. CLOTHING DESIGN. 1 Q. Winter. 4 cr. The principles of design and their application to clothing.

19. FOOD CONSERVATION. 1 Q. Summer. 5 cr. Open to all students. The fundamental methods used in conserving, processing, and storing the various food for family needs.

24. ELEMENTARY NUTRITION. 1 Q. Spring. Summer. 5 cr. No prerequisite. Open to non-majors. A study of fundamental principles of adequate human nutrition.

S50. HOME CARE OF THE SICK. 1 Q. Summer. 2 cr. A course planned in cooperation with the Red Cross to train teachers to become authorized instructors in home care of the sick. It provides information and practice of skills for care of the sick at home. Red Cross certification may be secured on completion of the course.

80. PROBLEMS IN HOME EQUIPMENT. 1 Q. Autumn. 4 cr. Materials, specifications, selection, care, and use of equipment.

82. TEXTILES. 1 Q. Spring. 4 or 5 cr. Fibers, their manufacture and use; physical and chemical tests to aid in the selection of clothing and household furnishings.

S86. WEAVING. 1 Q. Summer. 1-4 cr. Open to all students. A lecture and laboratory course in weaving textiles, using traditional and historic examples as source materials.

87. ADVANCED WEAVING. 1 Q. Any quarter. 5 cr. Offered by extension. Open to students with previous weaving experience. A lecture and laboratory course in advanced weaving techniques. Draft writing and original designs are studied.

#### FOR UNDERGRADUATES AND GRADUATES

119. HOUSE PLANNING AND FURNISHING. 1 Q. Winter. Summer. 5 cr. Prerequisite, junior standing. The aesthetic, economic, and hygienic problems in house planning and furnishing.

120. CLOTHING. 1 Q. Winter. 5 cr. Prerequisites, Home Economics 17c and 18; 82 recommended. The clothing problem of the family studied from the economic and social point of view.

122. NUTRITION. 1 Q. Autumn. 5 cr. Prerequisites, Home Economics 17b and Chemistry 19. Dietetics given in the light of the chemistry and physiology of digestion.

123. NUTRITION IN DISEASE. 1 Q. Spring. 4 cr. Prerequisite, Home Economics 122. The symptoms of disease, prophylaxis and feeding in disease.

124abc. CHILD DEVELOPMENT. 3 Q. Autumn, winter, spring. Summer. 3-5 cr. each quarter. Prerequisites, Psychology 11 and junior standing. Development of motor, linguistic, and intellectual skills and abilities of young children studied through observation and participation in the Nursery School. May be repeated to a maximum of nine credits.

125. CHILD NUTRITION. 1 Q. Winter. 3 cr. Prerequisite, Home Economics 122. The science of human nutrition as it applies to children,

using the University Nursery school as a laboratory for many of the problems studied.

NOTE: Courses 127 and 128 must be taken concurrently. The two courses require approximately 24 hours a week for lecture and laboratory time.

127. HOME LIVING CENTER. 1 Q. Autumn. Winter. Spring. Summer. 5 cr. Prerequisites, Home Economics 122 or consent of instructor and senior standing. Residence in the home living center for one term, applying principles gained in other courses in home problems.

128. HOME MANAGEMENT. 1 Q. Autumn. Winter. Spring. Summer. 2 cr. Prerequisites, Home Economics 122 or consent of instructor and senior standing. Management studies and discussion presented on problems in the home living center.

129. PROBLEMS IN FAMILY LIVING. 1 Q. Autumn. Summer. 3 cr. Prerequisites, Psychology 11 and Home Economics 17abc. A critical study of theories and practices in relation to the home and family life.

131. PROBLEMS OF THE CONSUMER. 1 Q. Spring. Summer. 3 cr. Prerequisite, consent of instructor. A critical analysis of problems confronting the consumer.

133. INSTITUTION COOKERY. 1 Q. Autumn. 4 cr. Prerequisites, junior standing, and Home Economics 17ab. Application of scientific principles of cookery to large quantity food preparation; service of foods; menu planning for institutions; food cost accounting. Campus foods units are used as laboratories.

134. INSTITUTION BUYING. 1 Q. Winter. 4 cr. Prerequisites, Home Economics 80 and 133. Includes the methods of selection, purchase and storage of foods for institutions; the selection and care of equipment for institutions; trips to various wholesale markets, hospitals, hotels, etc.

135. INSTITUTION ORGANIZATION AND MANAGEMENT. 1 Q. Spring. 3 cr. Prerequisites, Home Economics 133 and 134. Problems involved in efficient organization and administration of food service units—employment procedures; personnel schedules; records; food costs control; maintenance.

138. EXPERIMENTAL FOODS. 1 Q. Spring. 4 cr. Prerequisite, Home Economics 17b. Special problems are assigned for individual investigation. A study of foods from the scientific experimental point of view, approached by means of experiment and problems dealing with food compositions and preparation.

163. METHODS OF TEACHING HOME ECONOMICS. 1 Q. Winter. Spring. 4 cr. Prerequisite, Education 25ab. The fundamental principles of organization, unit planning, and method of presentation of subject matter. This course introduces the student to the problems of teaching.

183. ADVANCED PROBLEMS IN TEACHING HOME ECONOMICS. 1 Q. Spring. Summer. 3 cr. Prerequisites, Education 163 and 26, or consent of instructor. Consideration of problems and procedures dealing with satisfactory homemaking education in the upper grades and in high school.

198. PROBLEMS IN HOME ECONOMICS. 1 to 6 Q. Any quarter. Credit variable. Prerequisite, senior standing in Home Economics. Qualified students may select for study special problems of the home and the community in any of the following fields; Nutrition, textiles, child development, advanced design, family economics, teaching.

#### FOR GRADUATES

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

## JOURNALISM

Professors Olaf J. Bue (Acting Dean), Andrew C. Cogswell, Edward B. Dugan; Assistant Professors Richard L. Disney, Jr., Dorothy M. Johnson.

**HIGH SCHOOL PREPARATION.** In addition to the general requirements for admission to the University, it is recommended that the high school preparation include typing and possibly also shorthand.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN JOURNALISM.** In addition to the general requirements the candidate for a Bachelors degree in Journalism must complete the recommended core curriculum of 29 hours, plus the requirements of his sequence, plus upper class electives to make a total minimum of 45 hours in Journalism. The core curriculum in Journalism, required of all majors, shall consist of 21ab, 22ab, 30, 31, 41, 49abc, 100abc, 140a.



### THE JOURNALISM CURRICULUM

**NEWS-EDITORIAL SEQUENCE:** An additional 9 hours required to be chosen from Journalism 17, 125, 142, 191, 192.

**ADVERTISING SEQUENCE:** Journalism 140b and an additional 8 hours required to be chosen from Journalism 38, 143, 144, 148.

**MAGAZINE SEQUENCE:** An additional 9 hours required to be chosen from Journalism 17, 38, 132, 133, 134, 142.

**RADIO SEQUENCE:** An additional 9 hours required to be chosen from Journalism 145, 146, 147, 148.

**COMMUNITY JOURNALISM:** An additional 9 hours required to be chosen from Journalism 123ab, 124, 125, 143, 144.

### RECOMMENDED CURRICULUM FOR JOURNALISM MAJORS

**FRESHMAN YEAR:** Journalism 49abc; General 13abc; General 15abc; English 12abc; Health and Physical Education 11abc; Military or Air Science 1abc or 21abc. (Men).

**SOPHOMORE YEAR:** Journalism 21ab; History 12ab or 21abc; Economics 11ab; Health and Physical Education 12abc; Military or Air Science 2abc or 22abc (men); plus 12 to 15 elective credits.

**JUNIOR YEAR:** Journalism 22ab, 30, 140a (140ab for Advertising Sequence), 41; Political Science 17ab; Sociology 16; plus 18-24 elective credits.

**SENIOR YEAR:** Journalism 31, 100abc; plus 40 elective credits.

Total recommended hours in Journalism, 45.

Total recommended hours in General Education, 72.

Total electives, 63.

### FOR UNDERGRADUATES

17. **ELEMENTARY PHOTOGRAPHY.** 1 Q. Autumn. Winter. Summer. 3 cr. Prerequisite, junior standing or consent of instructor. Open to non-majors. Study of photographic equipment, materials, and facilities with practice in exposing and processing negatives and prints.

21ab. **REPORTING.** 2 Q. Autumn, winter. 3 cr. each quarter. Prerequisite, Journalism 49abc or consent of instructor. Open to non-majors. Groundwork in gathering, writing, and evaluating news.

22ab. **REPORTING PRACTICE.** 2 Q. Autumn, winter. Winter, spring. Spring, autumn. 2 cr. each quarter. Prerequisite, Journalism 21ab or concurrent registration. A laboratory and lecture course involving Kaimin news coverage, presenting reporting and publishing problems.

30. **COPYREADING.** 1 Q. Spring. 3 cr. Prerequisite, Journalism 21ab. Instruction and practice in revision of copy, headline writing, and use of references for checking accuracy.

31. **COPYREADING PRACTICE.** 1 Q. Autumn. Winter. Spring. 2 cr. Prerequisite, Journalism 30. Laboratory and lecture course involving desk work on the student daily.

36. **CURRENT EVENTS.** 1 Q. Any quarter. 1 cr. May be repeated for 12 quarters. Open to all students. Current history of the world; its background; its relationships and probable influences.

38. **TYPOGRAPHY.** 1 Q. Autumn. Winter. Spring. Summer. 2 cr. Prerequisite, consent of instructor. Students may enter any quarter. Problems of typographical design and application. Elementary work in printing and in the handling of type.

39. **GRAPHIC ARTS.** 1 Q. Autumn. Winter. Spring. 3 cr. Prerequisite, Journalism 38 or consent of instructor. Open to non-majors. Students may enter any quarter. Study of various printing and engraving processes including letter press, offset lithography, intaglio, electrotype, and stereotype. Attention is paid to the use of inks, paper, color, and other materials of graphic arts.

41. **ADVERTISING PRACTICE.** 1 Q. Autumn. Winter. Spring. 2 cr. each quarter. Prerequisite, Journalism 140a or concurrent registration. Preparation, promotion, and sale of advertising. Lecture, and staff work on the Kaimin.

49abc. **HISTORY AND PRINCIPLES OF JOURNALISM.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Open to non-majors. Study of American journalism from colonial times against a background of U. S. history with attention to the struggle for freedom of expression, its meaning, and its champions down through the years, developing techniques and competing media.

## FOR UNDERGRADUATES AND GRADUATES

100abc. SENIOR SEMINAR. 3 Q. Autumn, winter, spring. 1 cr. each quarter. Prerequisite, senior standing in journalism. Analysis of the problems of the young professional journalist adjusting to his work with consideration of ways and means to grow on the job.

S117. SCHOOL PUBLIC RELATIONS. 1 Q. Summer. 3 cr. Prerequisite, B.A. degree, teaching experience, or consent of instructor. A course to acquaint school administrators and those in the teaching profession with the principles of developing better understanding among the school, the press, and the community.

123ab. COMMUNITY JOURNALISM. 2 Q. Autumn, winter. 2 cr. each quarter. Prerequisite, Journalism 21ab. A study of news, editorial, circulation, and advertising problems of weekly and small daily newspapers.

124. NEWSPAPER MANAGEMENT. 1 Q. Autumn, winter or spring. 3 cr. Prerequisite, junior standing. The problems of management in the daily and weekly newspaper fields; actual financial setups and operation of newspaper and printing plants; cost-finding practice and systems in general use.

125. EDITORIAL WRITING. 1 Q. Spring. 3 cr. Prerequisite, senior standing. Study of current affairs and the editorial pages of some leading newspapers; practice in researching and writing editorials on current political, social, and economic topics.

126. SCHOOL PUBLICATIONS. 1 Q. Spring. Summer. 3 cr. Prerequisites, junior standing and consent of instructor. Open to non-majors. A course for students who plan to teach journalism courses in high schools or act as advisers to school publications.

132. MAGAZINE MAKEUP AND EDITING. 1 Q. Autumn. 3 cr. Prerequisite, junior standing. Theory and practice of editing layout, and makeup for magazines. Both specialized and general periodicals will be used as models. Practice will include the use of type, illustrations, adapting format to content, and advertising.

133. MAGAZINE ARTICLE WRITING. 1 Q. Winter. Summer. 3 cr. Prerequisites, junior standing and consent of instructor. Open to non-majors. The preparation and writing of articles for magazines of general circulation. Techniques of analyzing and selling to magazine markets.

134. TRADE AND TECHNICAL JOURNALISM. 1 Q. Autumn. Spring. 3 cr. Prerequisites, junior standing and consent of instructor. Open to non-majors. The writing and editing of trade and business journals, technical and specialized publications.

135. PROMOTION AND PUBLIC RELATIONS. 1 Q. Any quarter. 3 cr. Prerequisites, junior standing and consent of instructor. Open to non-majors. The techniques of promotion and the handling of public relations.

136. ADVANCED JOURNALISM PROBLEMS. 1-3 Q. Autumn. Winter. Spring. Summer. Credit variable. Prerequisites, junior standing and consent of the dean. Training and research in advanced journalism problems.

137. LAW OF JOURNALISM. 1 Q. Spring. 3 cr. Prerequisite, junior standing. Study of the legal guarantees and limitations of the right to gather and publish news and to comment on it: access to records, privilege, libel, privacy, contempt, copyright, statutory regulation.

140ab. PRINCIPLES OF ADVERTISING. 2 Q. Autumn, winter. 3 cr. each quarter. Prerequisite, junior standing. Open to non-majors. Fundamentals of advertising theory and techniques with emphasis on the role of advertising as it applies to the producer, the distributor, the consumer. Analysis of media use and the advertisement itself.

142. NEWS PHOTOGRAPHY. 1 Q. Spring. 3 cr. Prerequisite, Journalism 17 or consent of instructor. Photographic reporting with emphasis on picture possibilities, significance, interest, and impact. Practice with Speed Graphic and other news cameras, under artificial and natural light.

143. ADVERTISING LAYOUT AND COPY. 1 Q. Spring. 3 cr. Prerequisite, Journalism 40ab or Business Administration 155. Open to non-majors. Application of typographical and advertising principles to preparation of layouts and copy, with practice in sales promotion.

144. RETAIL STORE ADVERTISING. 1 Q. Spring. 3 cr. Prerequisite, Journalism 40ab or Business Administration 155. Open to non-majors. Integration of retail store merchandising among advertising media. Study of technical aspects of advertising schedules for retail stores.

145. NEWSCASTING. 1 Q. Autumn. 3 cr. Prerequisite, Journalism 21ab or consent of instructor. Basic consideration of radio as a news medium; preparation of local news broadcasts.

146. RADIO EDITING. 1 Q. Winter. 3 cr. Prerequisite, Journalism 145 or consent of instructor. Preparation of radio news scripts from wire and local copy; practice in newscasting.

147. SPECIAL EVENTS. 1 Q. Spring. 3 cr. Prerequisite, Journalism 146. Radio interviews, sports, interpretation, and comment; practice in newscasting.

148. RADIO COMMERCIALS. 1 Q. Autumn. Spring. 3 cr. Prerequisites, Journalism 146, junior standing, and consent of instructor. Study of current radio commercials, live and recorded, followed by realistic practice in preparation of copy for particular products and specific accounts.

190. PUBLIC OPINION. Offered 1 Q. Autumn, winter, or spring. 3 cr. Prerequisite, junior standing. Open to non-majors. A study of the theories of public opinion, the factors involved in its formation, and methods used in its measurement.

191. REPORTING PUBLIC AFFAIRS. 1 Q. Winter. 3 cr. Prerequisite, senior standing. Laboratory work in coverage of political and governmental news: city, county, state, and federal.

192. SPECIALIZED REPORTING. 1 Q. Spring. 3 cr. Prerequisite, senior standing and Journalism 191. A tutorial course for students wishing to specialize in some particular field of reporting such as politics, labor, finance, and science.

#### FOR GRADUATES

201. RESEARCH IN JOURNALISM. 1-3 Q. Autumn. Winter. Spring. Summer. Credit variable. Prerequisites, graduate standing and consent of the dean. Research in journalism for graduate students.

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

## LAW

Professors Edwin W. Briggs, Carl McFarland, David R. Mason, Oscar A. Provost, Robert E. Sullivan (Dean), J. Howard Toelle; Assistant Professors J. C. Garlington, Russell E. Smith, Albert W. Stone, Thomas L. Waterbury; Assistant Professor and Librarian Helen C. McLaury.

### CALENDAR

#### FALL SEMESTER 1955

Sept. 19-21, Monday through Wednesday.....	Registration and Orientation of new law students (including transfer law students from other schools)
Sept. 21, Wednesday.....	Registration of former law students
Sept. 22, Thursday.....	Classes begin at 8:00 a.m.
Nov. 24, Thursday.....	Thanksgiving Day (no classes)
Dec. 17, Saturday.....	Christmas vacation begins after the last class
Jan. 3, 1956, Tuesday.....	Classes resume at 8:00 a.m.
Jan. 11-14, Wednesday through Friday.....	Registration for courses in the Spring Semester 1956
Jan. 23-27, Monday through Friday.....	Semester examinations in all courses
	SPRING SEMESTER 1956
Jan. 30, Monday.....	Classes begin at 8:00 a.m.
Apr. 18-20, Wednesday through Friday.....	Preregistration for courses in the Fall Semester 1956
May 28-June 1, Monday through Friday.....	Semester examinations in all courses
June 4.....	Commencement

**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:** Effective September 1, 1955, 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 a 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.

For the student entering college on and after September, 1955, 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, and History and Political Science 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. Starting in September, 1955 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 11abc and, if possible, a course in Accounting.

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 and (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.

**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.

**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. 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. (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.

**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 credits of law in a semester.

## PROGRAM OF INSTRUCTION

FIRST YEAR. First Semester: Introduction to Law I, Contracts I, Torts I, Property I, Civil Procedure I, Criminal Law; Second Semester: Introduction to Law II, Contracts II, Torts II, Property II, Civil Procedure II, Equity.

SECOND YEAR. First Semester: Agency and Business Organizations I, Commercial Transactions I, Evidence, Civil Procedure III, Wills, Legal Writing; Second Semester: Agency and Business Organizations II, Commercial Transactions II, Constitutional Law, Creditors Rights, Trusts and Future Interests.

THIRD YEAR. First Semester: Restitution, Oil and Gas, Federal Taxation I, Labor Law, Secured Transactions, Court Room and Office Practice I; Second Semester: Criminal Procedure, Conflicts, Federal Taxation II, Trade Regulations, Water Law, Administrative Law, Legal Ethics, Court Room and Office Practice II.

## COURSES

ADMINISTRATIVE LAW. 1 S. Spring. 2 cr. McFarland and Vanderbilt, Cases on Administrative Law, 2nd edition.

AGENCY AND BUSINESS ORGANIZATIONS. 2 S. Autumn, spring. Continuous. 6 cr. Frey, Cases and Materials on Corporations and Partnerships.

CIVIL PROCEDURE I & II. 2 S. Autumn, spring. Continuous. 3 cr. Casebook to be announced.

CIVIL PROCEDURE III. 1 S. Autumn. 3 cr. Casebook to be announced.

COMMERCIAL TRANSACTIONS I & II. 2 S. Autumn, spring. Continuous. 5 cr. Casebook to be announced.

CONFLICTS. 1 S. Spring. 4 cr. Cheatham, Dowling, Goodrich, and Griswold, Cases on Conflict of Laws, 3rd edition.

CONSTITUTIONAL LAW. 1 S. Spring. 4 cr. Casebook to be announced.

CONTRACTS I & II. 2 S. Autumn, spring. Continuous. 6 cr. Williston, Cases on Contracts, 6th edition, by Professor Laube.

COURT ROOM AND OFFICE PRACTICE I & II. 2 S. Autumn, spring. Continuous. 2 cr. Montana Code of Civil Procedure, selected cases and practical exercises.

CREDITORS' RIGHTS. 1 S. Spring. 3 cr. Hanna and MacLachlan, Cases on Creditors' Rights, consolidated 4th edition.

CRIMINAL LAW. 1 S. Autumn. 3 cr. Perkins, Cases and Materials on Criminal Law & Procedure.

CRIMINAL PROCEDURE. 1 S. Spring. 2 cr. Casebook to be announced.

EQUITY. 1 S. Spring. 3 cr. Glenn and Redden, Cases and Materials on Equity, 2nd edition.

EVIDENCE. 1 S. Autumn. 4 cr. McCormick's Cases on Evidence.

FEDERAL TAXATION I. 1 S. Autumn. 4 cr. Kauper and Wright, Cases and Materials on Federal Income Taxation, (lithoprinted); Prentice-Hall, Law Students Tax Service.

FEDERAL TAXATION II. 1 S. Spring. 2 cr. Kauper and Wright, Cases and Materials on Estate, Inheritance, and Gift Taxation, (lithoprinted); Prentice-Hall, Law Students Tax Service; various estate planning materials, prepared by the instructor.

INTRODUCTION TO LAW I & II. 2 S. Autumn, spring. Continuous. 2 cr. Casebook to be announced.

LABOR LAW. 1 S. Autumn. 2 cr. Casebook to be announced.

LEGAL ETHICS. 1 S. Spring. 1 cr. Cheatham, Cases and Materials on the Legal Profession, 2nd edition.

LEGAL WRITING. 1 S. Autumn. 1 cr. No text.

OIL & GAS. 1 S. Autumn. 4 cr. Sullivan, Cases and Materials on Oil and Gas, (mimeographed).

PROPERTY I & II. 2 S. Autumn, spring. Not continuous. 7 cr. Aigler, Bigelow, and Powell, Cases on Property, 2nd edition. Volumes I & II.

RESTITUTION. 1 S. Autumn. 2 cr. Durfee and Dawson, Cases on Remedies, Volume II.

SECURED TRANSACTIONS. 1 S. Autumn. 3 cr. Hanna, Cases and Materials on Security.

TORTS I & II. 2 S. Autumn, spring. Continuous. 6 cr. Smith and Prosser, Cases and Materials on Torts.

TRADE REGULATIONS. 1 S. Spring. 2 cr. Handler, Cases on Trade Regulation.

TRUSTS & FUTURE INTERESTS. 1 S. Spring. 4 cr. Simes, Cases on Trusts and Succession; Simes, Cases on Future Interests, 2nd edition.

WATER LAW. 1 S. Spring. 2 cr. Mimeographed materials of instructor.

WILLS. 1 S. Autumn. 2 cr. Bingham's Costigan Cases on Wills and Administration, 3rd edition.

## LIBERAL ARTS

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

University Requirements	Credits	
English Composition .....	9-10	
Group I .....	12-15	
Physical Education .....	6	
Military Science (men) .....	10	27-41
Major Requirements		
History and Political Science .....	18	
Anthropology, Economics, Psychology, Sociology .....	20	
Literature .....	16	
Philosophy, Religion .....	15	
Art, Creative Writing, Drama, Music, Speech (In three of the five areas) .....	18	
Foreign Language .....	15	
Humanities, General 15abc .....	15	117

In three of the following four fields the student elects upper division courses equal to the number of credits indicated for those fields.

History and Political Science .....	8	
Anthropology, Economics, Psychology, Sociology .....	10	
Literature, Philosophy, Religion .....	9	
Art, Creative Writing, Drama, Music, Speech .....	10	27-29

Free Electives .....	15-0	
	<hr/>	186-187

## MATHEMATICS

Professors Harold Chatland, A. S. Merrill; Associate Professors D. G. Higman, T. G. Ostrom (Chairman); Assistant Professors W. Cowell, Joseph Hashisaki, William Myers; Instructors John Peterson, Richard Remington; Lecturer Vera Myers, Rinhak Ree.

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 catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in Mathematics: 45 or more credits in Mathematics, normally including Mathematics 13, 16, 21, 22, 23; 15 credits in Mathematics courses numbered above 100; 15 credits in Physics or 15 credits in mathematical statistics; and a reading knowledge of some foreign language, preferably French or German (23-25 credits or satisfactory examination at 4th quarter level).

No candidate will be accepted for graduation with honors who does not have credits in Mathematics 109ab.

### FOR UNDERGRADUATES

A. PRE-FRESHMAN ALGEBRA. 1 Q. Autumn. No credit. Designed to meet the needs of students who do not qualify for Mathematics 10.

10. INTERMEDIATE ALGEBRA. 1 Q. Autumn. Winter. Spring. Summer. 5 cr. Prerequisite, satisfactory performance in an examination in elementary algebra. Students who have completed Mathematics 18 may not receive credit in this course.

11. SOLID GEOMETRY. 1 Q. Spring. 5 cr. Prerequisites, Mathematics 10 and one entrance unit in plane geometry.

13. PLANE TRIGONOMETRY. 1 Q. Autumn. Winter. Spring. Summer. 5 cr. Prerequisites, plane geometry, and Mathematics 10 or satisfactory performance in an examination in intermediate algebra. This is not high school trigonometry.

16. COLLEGE ALGEBRA. 1 Q. Autumn. Winter. 5 cr. Prerequisite, Mathematics 10 or satisfactory performance in an examination in intermediate algebra.

18. INTRODUCTORY BUSINESS MATHEMATICS. 1 Q. Autumn. Winter. 5 cr. Prerequisite, 1 entrance unit of algebra. This course covers practically the same field as Mathematics 10, except that work on progressions and the binomial theorem replaces the study of quadratic systems. Students who have completed Mathematics 10 may not receive credit in this course.

19. ELEMENTARY MATHEMATICS OF INVESTMENTS. 1 Q. Autumn. Winter. Spring. 5 cr. Prerequisite, Mathematics 18 or 1½ entrance units of algebra.

21. PLANE ANALYTIC GEOMETRY. 1 Q. Spring. Summer. 5 cr. Prerequisite, Mathematics 13 and 16.

22. CALCULUS I. 1 Q. Autumn. 5 cr. Prerequisite, Mathematics 21. Differential calculus, and introductory work on integration.

23. CALCULUS II. 1 Q. Winter. 5 cr. Prerequisite, Mathematics 22. Applications of differential calculus; integral calculus.

24. CALCULUS III. 1 Q. Spring. 5 cr. Prerequisite, Mathematics 23. Infinite series; expansion of functions; hyperbolic functions; partial differentiation; multiple integration.

25. STATISTICS. 1 Q. Autumn. Winter. Spring. Summer. 5 cr. Prerequisite, Mathematics 10 or 18 or equivalent.

#### FOR UNDERGRADUATES AND GRADUATES

101. ORDINARY DIFFERENTIAL EQUATIONS. 1 Q. Autumn. 5 cr. Prerequisite, Mathematics 23. Elementary solutions of Differential Equations. Introduction to series solutions. Bessel. Legendre Equations, introduction to Sturm-Liouville systems. Picard's Method.

108. INTRODUCTION TO FUNCTIONS OF A COMPLEX VARIABLE I. 1 Q. Autumn. 3 cr. Prerequisite, 109ab. Beginning complex variables and basic concepts of topology.

109ab. ADVANCED CALCULUS. 2 Q. Autumn, winter. 3 cr. each quarter. Prerequisite, Mathematics 24. (a) The real number system, sequences of real numbers, continuous functions. (b) Riemann integration, series of functions, power series. Line integrals.

110ab. INTRODUCTION TO ABSTRACT MATHEMATICS. 2 Q. Autumn, winter. 3 cr. each quarter. Prerequisite, Mathematics 22. (a) An introduction to modern ideas of mathematics. Groups, rings, fields, vector spaces. (b) Vector spaces and matrix theory.

111. INTRODUCTION TO FUNCTIONS OF A COMPLEX VARIABLE II. 1 Q. Winter. 3 cr. Prerequisite, Mathematics 108.

112. LINEAR GROUPS. 1 Q. Spring. 1 cr. Prerequisite, Mathematics 110ab.

113. THE LEBESGUE INTEGRAL. 1 Q. Spring. 3 cr. Prerequisite, Mathematics 109ab. An introduction to the theory of Lebesgue measure and Lebesgue integration in Euclidean  $n$ -space.

125. SOLID ANALYTIC GEOMETRY. 1 Q. Spring. 5 cr. Prerequisite, Mathematics 23.

130. THEORY OF ARITHMETIC. 1 Q. Winter. Summer. 5 cr. (alternate years.) Prerequisites, junior standing and consent of instructor. The mathematical meaning and background of arithmetic. This course is designed to assist teachers in making their teaching meaningful.

131. ALGEBRA FOR TEACHERS. 1 Q. Winter. Summer. 5 cr. Prerequisite, Mathematics 22 or concurrent registration. The processes of elementary algebra and arithmetic considered from a mature point of view for the teacher of high school algebra.

132. GEOMETRY FOR TEACHERS. 1 Q. Winter. 5 cr. Prerequisite, consent of the instructor. The subject matter of high school geometry compared with that of other geometries.

140abc. MATHEMATICAL STATISTICS. 3 Q. Autumn, winter, spring. 5 cr. each quarter. Prerequisites, Mathematics 23 and permission of the Department. (a) Development of necessary mathematical concepts, probability, random variables and distribution function. (b) Random variables, distribution functions, sampling, testing hypothesis. (c) A continuation of (b).

150. SEMINAR. 1 Q. Any quarter. Credit variable. Prerequisites, junior standing and consent of instructor. This course provides guidance in special work for advanced students.

171abc. MATHEMATICAL METHODS OF SCIENCE. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisites, Mathematics 109ab and 101. (Mathematics 110ab is recommended.) (a) Differential equations, existence theorems, Fuch's theorem, method of Frobenius. (b) Complete closed orthonormal sets of functions, Fourier Series. (c) Sturm-Liouville systems and boundary value problems.

181. ANALYSIS I: TOPOLOGY. 1 Q. Autumn. 5 cr. Prerequisite, Mathematics 109b. The theory of plane sets of points, of general sets of points and properties invariant under continuous and topological transformations.

182. ANALYSIS II: MEASURE AND INTEGRATION. 1 Q. Winter. 5 cr. Prerequisite, Mathematics 181. Set functions; semi-rings, and fields of sets; measures. The general theory of integration with respect to a measure function.

183. ANALYSIS III: BANACH SPACES. 1 Q. Spring. 5 cr. Prerequisite, Mathematics 182. Selected topics from among linear operators, Banach spaces, complete and orthonormal sets of functions and expansions.

191. ABSTRACT ALGEBRA I. 1 Q. Autumn. 3 cr. Prerequisites, Mathematics 109ab and 110ab. Groups, rings, isomorphisms, homomorphisms, integral domains, fields, ideals.

192. ABSTRACT ALGEBRA II. 1 Q. Winter. 3 cr. Prerequisite, Mathematics 191. Theory of fields, field extensions, Galois fields, norms and traces.

193. ABSTRACT ALGEBRA III. 1 Q. Spring. 3 cr. Prerequisite, Mathematics 192. Groups with operators, normal series and composition series, Galois theory, real fields, fields with valuations.

FOR GRADUATES

200. GRADUATE SEMINAR. 1 Q. Any quarter. Credit variable. Prerequisite, graduate standing and consent of instructor. This course provides guidance in graduate subjects or research work.

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

ASTRONOMY

A-11. DESCRIPTIVE ASTRONOMY. 1 Q. Spring. 5 cr. Open to all students. An introductory course.

MEDICAL TECHNOLOGY

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

SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN MEDICAL TECHNOLOGY. At least the fourth year of the following prescribed courses must be taken in residence at this University, and preferably the third and fourth years. In addition to the general requirements for graduation listed earlier in the catalog the following courses in the several curricula noted below comprise the professional curriculum leading to the degree of Bachelor of Science in Medical Technology. For further description of these courses, see the detail given elsewhere in this catalog for the particular subject involved.

FRESHMAN YEAR: Zoology 10; Psychology 11; Mathematics A if required; Mathematics 10; Chemistry 11abc or 13abc; plus required English, Physical Education, and Military or Air Science.

SOPHOMORE YEAR: Chemistry 38ab, 103 or 13c; Physics 11abc; 3 quarters of Social Science; plus required Physical Education and Military or Air Science.

JUNIOR YEAR: Bacteriology 117, 118, 119; General 15abc; Chemistry 13c or an elective; Chemistry 17, 5 cr., or elective.

SENIOR YEAR: Bacteriology 103, 121, 122, 125, 3 quarters of 129, 2 quarters of 131; Zoology 105; 9-10 credits of electives.



## PHARMACY

Professors Jack E. Orr (Dean), John F. Suchy; Associate Professor Tracey G. Call; Assistant Professors Gordon H. Bryan, John L. Wailes.

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 as a class "A" school by the American Council on Pharmaceutical Education.

A three-year professional program based on two years of general college work and leading to the degree of Bachelor of Science in Pharmacy is offered. The first two years are devoted to the 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.

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 catalog.

2. At least two years of prescribed pre-pharmacy college courses as follows:

Composition, 9-10 credits; Inorganic Chemistry (incl. qual. anal.), 15-20 credits; General Zoology or Biology, 10 credits; Organic Chemistry, 10 credits; Physics, 10-15 credits; Botany, 5 credits; Principles of Economics, 5-8 credits; Mathematics (must complete through trigonometry), 5-10 credits; Group II or Group III electives, 10-15 credits.

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.

The autumn quarter is the normal time of admission to the School of Pharmacy.

**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.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PHARMACY.** 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.

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.

### PRE-PHARMACY CURRICULUM

**FIRST YEAR:** Chemistry 11abc or 13abc, Zoology 10, English 11ab, Mathematics 10, 13, ROTC 1abc or 21abc, Health and Physical Education 11abc, Botany 13. (Students satisfactorily passing the mathematics placement examination will be exempt from Mathematics 10, in which case they will substitute a Group II or Group III elective.)

**SECOND YEAR:** Chemistry 38ab, Physics 11a, 25, Economics 14ab, Zoology 23, ROTC 2abc or 22abc, Health and Physical Education 12abc and Group II or Group III electives. (Students who have completed Chemistry 11abc must take Chemistry 13c.)

## PHARMACY CURRICULUM

FIRST YEAR: Bacteriology 101ab, Business Administration 11a, Pharmacy 10, 14, 21a, 24ab, 26, 52, Zoology 140ab.

SECOND YEAR: Chemistry 40, 103, Pharmacy 21b, 24c, 114abc, 121, 141, 152, Health and Physical Education 32, Business Administration 151 and electives.

THIRD YEAR: Business Administration 162, Pharmacy 140abc, 175, 177, 193, 195abc, 196, 197abc and electives.

## FOR UNDERGRADUATES

10. PRINCIPLES OF PHARMACY. 1 Q. Winter. 3 cr. Metrology, pharmaceutical arithmetic, pharmaceutical Latin, and the form of the prescription including prescription calculations.

14. INORGANIC PHARMACEUTICAL CHEMISTRY. 1 Q. Autumn. 4 cr. Prerequisite, Chemistry 13c or equivalent. The inorganic chemicals of medicinal and pharmaceutical importance. Laboratory work on official identity and purity tests and incompatibilities.

21ab. OPERATIVE PHARMACY. 2 Q. Spring, 3 cr.; autumn, 5 cr. Prerequisite, Pharmacy 10. Fundamental technics and processes and the various classes of pharmaceutical preparations.

24abc. PHARMACOGNOSY. 3 Q. Winter, 3 cr.; spring, 4 cr.; autumn, 3 cr. Prerequisites, Botany 13, Chemistry 38ab, or equivalents. The plant and animal products used in pharmacy and medicine.

26. HISTORY AND LITERATURE OF PHARMACY. 1 Q. Autumn. 3 cr. Historical evolution of pharmacy, scope of present day pharmacy, literature of the profession and ethical principles which guide the practice of pharmacy.

52. DRUG ANALYSIS I. 1 Q. Spring. 5 cr. Prerequisite, Pharmacy 14. Quantitative analysis of official drugs and preparations according to the methods of the U.S.P. and N.F.

## FOR UNDERGRADUATES AND GRADUATES

102. MEDICINAL PLANTS. 1 Q. On demand. 2 cr. Prerequisite, Pharmacy 24abc or permission of instructor. The collection, identification, drying, garbling, milling of crude drugs.

104. IDENTIFICATION OF MEDICINAL PLANTS. 1 Q. Any quarter, on demand. 3 cr. Prerequisite, Pharmacy 102 or permission of instructor. The herbarium study of medicinal plants.

113. DRUG MICROSCOPY. 1 Q. On demand. 2 cr. Prerequisites, junior standing in pharmacy and Pharmacy 24abc. Microscopic and microchemical examination of drugs, foods and spices. The detection of adulterants and impurities.

114abc. ORGANIC MEDICINAL PRODUCTS. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisites, Pharmacy 21a and Chemistry 38ab. The various organic substances used medicinally with special emphasis on the correlation of chemical structure with therapeutic activity and incompatibility.

115. ORGANIC MEDICINAL PRODUCTS LABORATORY. 1 Q. Any quarter. 2 cr. May be taken to a maximum of 6 credits. Prerequisite, Pharmacy 114abc or concurrent registration. A laboratory course supplementing Pharmacy 114abc. Synthesis, identity and purity tests, and incompatibilities of typical organic medicinals.

121. PHYSICAL PHARMACY. 1 Q. Winter. 5 cr. Prerequisites, Pharmacy 21ab and Chemistry 40 or equivalent. The application of physical chemical principles and laws to the preparation and study of pharmaceutical products.

130. MANUFACTURING PHARMACY. 1 Q. On demand. 3 cr. Prerequisite, Pharmacy 121. Methods and technics employed in the formulation and production of pharmaceuticals.

140abc. PHARMACOLOGY. 3 Q. Autumn, winter, spring. 4 cr. each quarter. Prerequisites, Zoology 140ab or equivalent, and senior standing in Pharmacy. The pharmacodynamics of drugs and its application to therapeutics.

141. BIOASSAY. 1 Q. Winter. 3 cr. Prerequisite, Zoology 140ab. The evaluation of the potency of drugs by biological means.

142. TOXICOLOGY. 1 Q. Spring, on demand. 3 cr. Prerequisite, Pharmacy 140ab. Emergency procedures for the treatment of poisoning, characteristics of the more common poisons, and the recognition and identification of poisons.

150. **ADVANCED MANUFACTURING PHARMACY.** 1 Q. On demand. 3 cr. Prerequisite, Pharmacy 130. Study of the more complex production technics.

152. **DRUG ANALYSIS II.** 1 Q. Winter. 4 cr. Prerequisite, Pharmacy 52. Special and instrumental methods used in the analysis of pharmaceutical preparations.

160. **COSMETICS.** 1 Q. On demand. 3 cr. Prerequisite, Pharmacy 121. Lecture and laboratory in the theory and technic of cosmetic formulation.

165. **ADVANCED ANALYSIS.** 1 Q. On demand. 3 cr. Prerequisite, Pharmacy 152. A study of the more involved methods of analysis as applied to pharmaceuticals.

175. **ANIMAL HEALTH PHARMACY.** 1 Q. Winter. 3 cr. Prerequisite, Pharmacy 140a. A study of pharmaceuticals used in the treatment of diseases of animals.

176. **PESTICIDES.** 1 Q. Spring. 3 cr. Prerequisite, Pharmacy 114abc, or consent of instructor. Fungicides, herbicides, insecticides, rodenticides, and miscellaneous pest control methods and materials.

177. **PHARMACY ADMINISTRATION.** 1 Q. Spring. 3 cr. Prerequisite, senior standing in pharmacy. Problems involved in the management of a retail pharmacy with emphasis on the professional problems of the drug store.

192ab. **HOSPITAL PRACTICE.** 1-2 Q. On demand. 1-3 cr. each quarter. Prerequisite, Pharmacy 195a. A laboratory course in which the student participates in the routine of a hospital pharmacy. At hospital.

193. **BIOLOGICAL MEDICINAL PRODUCTS.** 1 Q. Autumn. 5 cr. Prerequisite, Bacteriology 101ab. Biologicals, antibiotics, vitamins, hormones, and other medicinal products of biological origin.

195abc. **DISPENSING.** 3 Q. Autumn, 3 cr.; winter, 4 cr.; spring, 4 cr. Prerequisite, Pharmacy 121. The fundamental principles of prescription compounding by means of a detailed study of the common dosage forms and special forms of medication. Fundamental principles involved in product formulation.

196. **PHARMACEUTICAL LAW.** 1 Q. Autumn. 3 cr. Prerequisite, senior standing in Pharmacy. State and federal laws pertaining to the practice of pharmacy.

197abc. **PHARMACEUTICAL PRACTICE.** 3 Q. Autumn and winter. 2 cr. each quarter. Spring. 1 cr. Prerequisite, senior standing in pharmacy. Students are assigned to the Montana State University Prescription Pharmacy and to various pharmacies in Missoula in order to acquaint them with current retail practices.

198. **PHARMACY SEMINAR.** Any quarter. 1 cr. each quarter. May be taken to a maximum of 6 credits. Prerequisite, senior standing in pharmacy.

199. **SPECIAL PROBLEMS IN PHARMACY.** Any quarter. 2-5 cr. May be repeated up to a total of 10 cr. Prerequisite, senior standing in pharmacy. Research studies by conference, library and laboratory research in pharmacy, pharmaceutical chemistry, pharmacognosy, or pharmacology.

#### FOR GRADUATES

201. **RESEARCH.** Credits and hours to be arranged.

205. **ALKALOIDS.** 1 Q. Any quarter. 4 cr. Prerequisite, Pharmacy 114abc or equivalent. Structure, synthesis, isolation, identification of the alkaloids.

206. **ADVANCED PHARMACOGNOSTICAL TECHNIQS.** 1 Q. Spring. 3 cr. Prerequisites, Pharmacy 102, Botany 121, 168. Technics used in investigative pharmacognosy.

207. **STEROLS, TERPENES, AND VOLATILE OILS.** 1 Q. Any quarter. 3 cr. Prerequisite, Pharmacy 114abc or equivalent. Occurrence, preparation, isolation, and chemistry of the sterols, terpenes, and volatile oils.

209. **ADVANCED PHARMACOLOGY.** 1-3 Q. Any quarter. 3-5 cr. Prerequisite, Pharmacy 140abc or equivalent. The more involved actions of drugs upon cells and organs.

210. **ADVANCED PHARMACY.** 1-3 Q. Any quarter. 3-5 cr. Prerequisite, Pharmacy 195abc or equivalent. The more complex problems involved in formulation and preparation of pharmaceuticals.

214abc. **ADVANCED ORGANIC MEDICINAL PRODUCTS.** 3 Q. Autumn, winter, spring. 3-5 cr. each quarter. Given in alternate years. The organic medicinals with emphasis on proof of structure, synthetic procedures, structure-activity relationships, etc.

299. **THESIS.** Any quarter. Credit variable. Maximum credit allowable 15.

## PHYSICAL SCIENCES

**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
<b>Group Requirements</b>		
Group II .....	12	
Group III .....	12	24
<b>Requirements outside major</b>		
Biological Science 13abc or 15 credits in Biological Science selected from Zool. 10, 24, Bot. 10a or 11a; at least 5 cr. must be selected from each of the two fields Botany and Zoology .....	15	
Language .....	8-23	23-38
<b>Major Requirements</b>		
Mathematics through Analytical Geometry .....	15-20	
Chemistry 11abc or 13ab and 13c .....	15-20	
Physics 11abc or 20abc .....	15	
Geology 11ab, 35 .....	10	
Astronomy .....	5	63-73
<b>Fifteen credits from one of the following sequences:</b>		
Mathematics 22, 23, 110ab .....	16	
Physics 114ab, 122, 146, 152 (Requires Math. 22, 23) .....	25	
Chemistry 17, 19 or 38, 40 .....	15	
Geology 22abc or 24ab, 26, and 120 .....	15	15-25
<b>Free Electives</b> .....		46-0
		186

If a teaching certificate and the advanced sequence in Physics are desired substitute 24 credits in Education for 15 credits in Biological Science and 9 credits of free electives.

If a teaching certificate and the advanced sequence in Mathematics, Chemistry or Geology are desired substitute 24 credits in Education for 24 credits of free electives.

## PHYSICS

Professors C. R. Jeppesen (Chairman), G. D. Shallenberger;  
Associate Professor Mark J. Jakobson; Assistant Professor Richard J. Hayden; Scientific Technician Archer Taylor.

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

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PHYSICS.** In addition to the general requirements for graduation listed earlier in the catalog forty or more credits in physics must be earned for the Bachelor of Arts degree. In preparation for advanced courses, a student should take Physics 20abc in the sophomore year. Essential courses offered in other departments: Mathematics 13, 16, 21, 22, 23, 24; Chemistry 13abc; a reading knowledge or five quarters (23 to 25 credits) in one modern language.

### FOR UNDERGRADUATES

11abc. **GENERAL PHYSICS.** 3 Q. Autumn, winter, spring. (For summer, see summer session bulletin.) 5 cr. each quarter. Prerequisite for 11a, Mathematics 10; 11a is prerequisite for 11b and 11c. This course satisfies medical school requirements in general physics. (a) Mechanics and wave motion; (b) sound, electricity and magnetism; (c) heat and light. Students may not receive credit in both 11abc and 20abc.

20abc. **GENERAL PHYSICS.** 3 Q. Autumn, winter, spring. 5 cr. each quarter. Prerequisites: for 20a, Mathematics 13; for 20b, 20a; for 20c, 20b; high school physics is desirable. This course satisfies medical and technical

school requirements in general physics. (a) mechanics and wave motion; (b) sound, electricity, and magnetism; (c) heat and light.

25. **SELECTED TOPICS FROM GENERAL PHYSICS.** 1 Q. Winter. 5 cr. Prerequisite, Physics 20a or 11a. Topics selected include heat, light, electricity, and magnetism. This course is essentially a duplication of parts of Physics 11bc and 20bc.

50ab. **LABORATORY ARTS.** 2 Q. Autumn, winter. 1 cr. each quarter. Open to upper division science majors who have completed Physics 20abc. Elements of glass blowing and machine shop practice.

70. **GEOMETRICAL OPTICS.** 1 Q. Spring. 2 cr. Prerequisite, Physics 20abc or 11abc and Mathematics 13 and 16. Lectures and laboratory. Given 1956-57 and in alternate years.

112. **VECTOR ANALYSIS.** 1 Q. Autumn. 5 cr. Prerequisites, Physics 20c and Mathematics 24.

114ab. **ELECTRICITY.** 2 Q. Winter, spring. 5 cr. each quarter. Prerequisites, Physics 112. Lectures and laboratory. Given in 1956-57, and in alternate years.

122. **LIGHT.** 1 Q. Autumn. 5 cr. Prerequisites, Physics 20abc and Mathematics 22 or concurrent registration. Lectures and laboratory. Given in 1956-57, and in alternate years.

131ab. **SELECTED TOPICS.** 2 Q. Any quarter. 1-5 cr. each quarter. Prerequisites, consent of instructor and 15 credits in college physics.

146. **HEAT.** 1 Q. Winter. 5 cr. Prerequisites, Physics 20abc and Mathematics 23 or concurrent registration. Given in 1955-56, and in alternate years.

152. **ATOMIC PHYSICS.** 1 Q. Autumn. 5 cr. Prerequisites, Physics 20abc and Mathematics 22 or concurrent registration. Lectures and laboratory. Given in 1955-56, and in alternate years.

160. **INTRODUCTION TO NUCLEAR PHYSICS.** 1 Q. Spring. 5 cr. Prerequisite, Physics 152. Given in 1955-56, and in alternate years.

166. **ELECTRONICS.** 1 Q. Spring. 3 cr. Prerequisite, Physics 114b or concurrent registration. Lectures and laboratory. Given in 1956-57, and in alternate years.

170ab. **THEORETICAL PHYSICS.** 2 Q. Winter, spring. 5 cr. each quarter. Prerequisites, Physics 112 and Mathematics 23.

180. **PHYSICS SEMINAR.** 1 Q. Spring. 1 cr. A library and discussion course required of physics majors.

#### FOR GRADUATES

201. **RESEARCH.** Given subject to demand. 2-10 cr. Prerequisites, graduate standing and consent of instructor.

212abc. **ADVANCED EXPERIMENTAL PHYSICS.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Given subject to demand.

252. **RADIATION AND ATOMIC STRUCTURE.** Given subject to demand. 5 cr. Prerequisites, Physics 152 and graduate standing.

254ab. **QUANTUM MECHANICS.** 2 Q. Winter, spring. 5 cr. each quarter. Prerequisites, Physics 152, 170ab and graduate standing. Given subject to demand.

299. **THESIS.** Any quarter. Credit variable. Maximum credit allowable 15.

## PRE-MEDICAL SCIENCES

**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, French or German and a well-rounded background in English literature and in the social studies.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PRE-MEDICAL SCIENCES.** In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in Pre-Medical Sciences.

**FIRST TWO YEARS:** Chemistry 11abc or 13ab, 13c, 38ab; Zoology 10, 11 or Botany 11b; Physics 11abc or 20abc; French or German through course 13 (the number of quarters taken depends upon high school preparation and placement examination); electives selected in general from the non-sciences to make 90 credits.

**SECOND TWO YEARS:** Bacteriology 117, 118, 119; Chemistry 17, 40; Psychology 11; Zoology 23, 102; French or German through course 15; additional electives to meet requirements for graduation.

Students who complete 135 cr. of pre-medical work (plus 6 cr. 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.

## PSYCHOLOGY AND PHILOSOPHY

Professors E. A. Atkinson (Chairman), Maurine Clow, Edwin L. Marvin, Bert R. Sappenfield; Assistant Professors Frank M. du Mas, Thomas C. Burgess, James H. Straughan; Lecturer Samuel L. Boker; Instructor F. I. Brissey.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN PSYCHOLOGY AND PHILOSOPHY.** A foreign language is not required for a degree, but is strongly recommended for those who intend to do graduate work.

Senior examinations will be given only to candidates for honors.

In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in Psychology, Philosophy or a combination of Psychology and Philosophy.

A. **PHILOSOPHY MAJOR:** 45 or more credits in philosophy, including Philosophy 50, 51, 52a, 52b, and 55.

B. **PSYCHOLOGY MAJOR:** 45 or more credits in psychology, including Psychology 11, 17, 111a, and 111b or 111c, 104 and 130a, and certain other courses recommended by the adviser, such as Zoology 10 and 24 and Mathematics 25.

C. **COMBINED MAJOR:** 45 or more credits in philosophy and psychology combined. This concentration is designed for a program of general education rather than for professional preparation. The adviser will assist the student in selecting a combination of courses depending upon the student's need.

## PHILOSOPHY

### FOR UNDERGRADUATES

28. **PHILOSOPHY OF RELIGION.** 1 Q. Winter. 3 cr. Open to all students. An examination of typical themes in religious philosophy including the problem of the existence of God, the problems of evil, human freedom, prayer, and immortality. Not given in 1956-57. Credit not allowed for this course and the identical course Religion 28.

50. **LOGIC.** 1 Q. Autumn. Spring. 5 cr. A study of the valid forms of reasoning, the methods of science, and the detection of fallacies.

51. **ETHICS.** 1 Q. Winter. 5 cr. Inquiry into the nature of moral values, the standards of moral judgment, and the moral problems arising in personal life and in social relations.

52a. **HISTORY OF ANCIENT AND MEDIEVAL PHILOSOPHY.** 1 Q. Winter. 5 cr. Prerequisite, sophomore standing or consent of instructor.

52b. **HISTORY OF MODERN PHILOSOPHY.** 1 Q. Spring. 5 cr. Prerequisite, either Philosophy 55 or Philosophy 52a.

55. **INTRODUCTION TO PHILOSOPHY.** 1 Q. Autumn. 5 cr. Prerequisite, sophomore standing or consent of instructor. A study of human nature and the human effort to establish standards of thought, feeling and conduct. Topics treated will include personal ethics, social and political philosophy, the meaning of religion for man, and the endeavor to reach a unified view of the world.

S144. **PHILOSOPHY OF MODERN PSYCHOLOGY.** 1 Q. Summer. 3 cr. Prerequisites, Psychology 11 and junior standing. The logical foundation of modern psychological science and consideration of some of the philosophical problems of behavior science as a basis of the educative process.

S151. **SOCIAL ETHICS.** 1 Q. Summer. 3 cr. Prerequisite, junior standing. A study of traditional and contemporary social ideals, including the aristocratic, the democratic, the liberal, the fascist, and the socialist ideals, with special references to their ethical foundations. Consideration will be given to current problems arising within and between nations as a result of the interrelationships and conflicts between social ideals and ideologies.

153. **AESTHETICS.** 1 Q. Spring, 5 cr. Summer, 3 cr. Prerequisite, junior standing. A study of theories concerning the nature of beauty, of the aesthetic experience, and of the standards involved in judging, criticizing,

and appreciating works of art. Consideration will be given to form, matter, expression, symbolism, intuition, empathy, subjective response, and objective meaning. Readings will include both classical and contemporary aesthetic theories as presented by philosophers, artists, and art critics.

156. CONTEMPORARY PHILOSOPHY. 1 Q. Autumn. 5 cr. Prerequisites, junior standing and Philosophy 52b. (52b may be waived by consent of instructor.) A study of selected philosophies of the present and recent past. The content of the course will vary from year to year. Not given in 1955-56.

157. METAPHYSICS AND EPISTEMOLOGY. 1 Q. Autumn. 5 cr. Prerequisites, Philosophy 52b and consent of the instructor. Philosophical theories concerning the nature of reality and the validity of human knowledge.

191. PROBLEMS IN PHILOSOPHY. 3 Q. Autumn, winter, spring. Prerequisites, 15 credits in Philosophy and consent of the instructor. Credit variable. Not more than nine credits may be applied toward graduation.

## PSYCHOLOGY

### FOR UNDERGRADUATES

10. HOW TO STUDY AND WORK EFFECTIVELY. 1 Q. Any quarter. 3 cr. Prerequisite, permission of the instructor. Designed to assist students who have good aptitude but low performance record.

11. INTRODUCTION TO PSYCHOLOGY. 1 Q. Autumn. Winter. Spring. Summer. 5 cr. Open to all students. An outline study of the whole field, and an introduction to the special courses in psychology.

13. CHILD AND ADOLESCENT PSYCHOLOGY. 1 Q. Autumn. Winter. Spring. Summer. 5 cr. Prerequisite, Psychology 11. The psychological development of the child from birth through adolescence.

14. SOCIAL PSYCHOLOGY. 1 Q. Autumn. Winter. Spring. 5 cr. Prerequisite, Psychology 11. Effects of social factors on the personality and behavior of individuals. Psychology of propaganda, leadership, morale, social attitudes and related topics.

17. QUANTITATIVE METHODS. 1 Q. Spring. 5 cr. Prerequisites, Psychology 11 and Mathematics 25 or equivalent. Application of statistical techniques to psychological experiments and tests. Interpretation and theory stressed.

32. PSYCHOLOGY OF BUSINESS. 1 Q. Autumn. Winter. Spring. 5 cr. Prerequisite, Psychology 11.

### FOR UNDERGRADUATES AND GRADUATES

S103. PSYCHOLOGY OF LEARNING. 1 Q. Summer. 3 cr. Prerequisites, Psychology 11 or Education 23 and junior standing. A survey of systematic and theoretical interpretations in learning.

104. SYSTEMATIC PSYCHOLOGY. 1 Q. Winter. 5 cr. Prerequisites, junior standing and Psychology 11. A study of the historical development of the major psychological systems; functionalism, structuralism, behaviorism, psychoanalysis, gestalt, etc.

105. PHYSIOLOGICAL PSYCHOLOGY. 1 Q. Spring. 3 cr. Prerequisites, Psychology 11, Zoology 10 and junior standing. A study of certain physiological and neurological functions related to psychological activity.

111abc. EXPERIMENTAL PSYCHOLOGY. 3 Q. Autumn, winter, spring. 5 cr. each quarter. Prerequisite for 111a, Psychology 17; 111a is prerequisite for 111b and/or 111c. (a) Motivation. Elements of scientific method. Motivation and related problems with concurrent laboratory work. (b) Perception. A survey of sensation, perception, and psycho-physical techniques with concurrent laboratory work. (c) Learning. Lectures, demonstrations and assigned laboratory work dealing with the methodology, results, and interpretations of human and animal experiments concerning learning.

S113. ADVANCED CHILD AND ADOLESCENT PSYCHOLOGY. 1 Q. Summer, 4 cr. Prerequisites, junior standing; Psychology 13 or Education 23 and teaching experience. Systematic consideration of theories and research on motivation, personality, emotions, attitudes, social learning and adjustment in children from birth through adolescence.

115. ABNORMAL PSYCHOLOGY. 1 Q. Autumn. Spring. Summer. 5 cr. Prerequisites, Psychology 11 and junior standing. A study of abnormal phenomena and mental disorders; sleep and dreams; the subconscious; hypnosis; psychoanalysis.

116. PSYCHOLOGY OF ADJUSTMENT AND MENTAL HYGIENE. 1 Q. Winter. 5 cr. Prerequisites, Psychology 11 and junior standing. A general study of all aspects of mental hygiene and the adjustment of the per-

sonality to modern life. Some emphasis on the mental hygiene of the school room.

119. MENTAL HEALTH IN THE CLASSROOM. 1 Q. Any quarter. 4 cr. Prerequisites, Psychology 116; or Education 23, 140, and 152; or, Education 23 and extensive teaching experience; consent of instructor. Offered by extension only.

This course is designed for in-service training of classroom teachers. Whenever possible it will be given by the staff of one of the State Mental Hygiene Clinics. Students may not receive credit for this course and the identical course Education 119.

128. PSYCHOLOGY OF PERSONALITY. 1 Q. Any quarter. 3 cr. Prerequisites, Psychology 11 and junior standing. Principles of personality organization and processes of disorganization. The social stimulus values of modes of behavior and personality characteristics.

129. MEASUREMENT OF INDIVIDUAL DIFFERENCES. 1 Q. Autumn. 5 cr. Prerequisites, 10 cr. of Psychology and junior standing. The principles and methods of measurement of individual differences. Construction and interpretation of psychological tests.

130a. PSYCHOLOGICAL TESTING. 1 Q. Winter. 3 cr. Prerequisite, Psychology 129. Evaluation of specific group and individual psychological tests used to measure intelligence, aptitudes, interests, and personality characteristics.

130b. PROJECTIVE TECHNIQUES. 1 Q. Spring. 3 cr. Prerequisites, Psychology 128, 129. Evaluation of specific projective tests such as the Thematic Apperception, Rorschach, and H-T-P.

131. CLINICAL PSYCHOLOGY. 1 Q. Spring. 5 cr. Prerequisites, Psychology 115 and 130, and junior standing; open only to psychology majors. Techniques applicable to clinical problems. Emphasis on history taking, diagnostic interviewing and testing, and the therapeutic interview.

132. TESTING LABORATORY. 1 Q. Any quarter. 3 cr. Prerequisites, Psychology 129, 130a, or 130b, and senior standing. May be repeated to a maximum of 6 cr. A study of, and practice in, the current individual psychological tests, such as the Stanford-Binet, Wechsler-Bellevue, Thematic Apperception, and the Rorschach.

140. INDUSTRIAL PSYCHOLOGY. 1 Q. Spring. 3 cr. Prerequisites, Psychology 11 and junior standing. Applications of psychology in industry; job analysis; accident prevention; development of skill; fatigue; motives in industry; psychological problems of supervision and management.

141. PERSONNEL PSYCHOLOGY. 1 Q. Winter. 3 cr. Prerequisites, Psychology 11 and junior standing. Psychological principles in personnel; development and usefulness of tests, rating scales and other technical personnel aids in selection, classification and training of personnel; psychological techniques in worker efficiency and adjustment problems.

174. COUNSELING LABORATORY. 1 Q. Any quarter. 4 cr. Prerequisites, Psychology 130, junior standing, and permission of the instructor. This course is designed to afford practical experience in psychological testing, clinical work and counseling.

S175. PSYCHOLOGY OF COUNSELING HIGH SCHOOL GIRLS. 1 Q. Summer. 3 cr. Prerequisites, Psychology 130 or Education 23, teaching experience and junior standing. Interview methods, test interpretation, counseling techniques, behavior problems, and such other problems as are commonly handled by a high school dean of girls.

190. PROBLEMS IN PSYCHOLOGY. 3 Q. Autumn, winter, spring. Summer. Credit variable. Prerequisites, 15 credits in psychology and consent of the instructor. Not more than nine credits may apply toward graduation.

#### FOR GRADUATES

201. RESEARCH. Any quarter. Credit variable. Permission of instructor required. Work on selected problems under direction.

212. ADVANCED EXPERIMENTAL PSYCHOLOGY. 1 Q. Any quarter. 3-5 cr. Prerequisites, Psychology 111a and 111b or 111c and graduate standing.

231. HOSPITAL INTERNSHIP. Any quarter. 3 cr. Prerequisites, permission of instructor and graduate standing. May be repeated for a total of 9 credits.

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.



## RADIO

**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 CERTIFICATE IN RADIO.** Graduation from the University and successful completion of 21 credits in Radio, including Radio 1, 45, and at least 2 quarters of 46. Those wishing to prepare for Federal Communications Commission certification are required to take Physics 11ab and Radio 3ab.

Any student not wishing the certificate may take any of the following courses, subject to the prerequisite requirements or the consent of the radio adviser.

1. **INTRODUCTION TO RADIO.** 1 Q. Winter. 2 cr. Open to freshmen. Radio as an instrument of mass communication and entertainment; its history, extent, economics, regulation and responsibilities.

3ab. **RADIO ELECTRONICS.** 2 Q. Autumn, winter. 5 cr. each quarter. Prerequisite, Physics 11ab or consent of instructor. Not open to freshmen. A study of vacuum tubes, radio circuits, high frequency oscillation, electronic measurements, and regulations of the Federal Communication Commission.

4. **MUSIC IN RADIO.** 1 Q. Autumn. 3 cr. Prerequisites, Radio 1 and 45. Study of music in its relation to radio programs, planning programs, music productions, selection of personnel and talent. Problems of copyright clearance, music continuity, microphone technique for music productions and developing a music library for radio stations. Credit not allowed for this course and identical course Music 45.

5. **STUDIO EQUIPMENT.** 1 Q. Spring. 3 cr. Prerequisites, Radio 1 and 45. Not open to freshmen. An introduction to the mechanics of equipment used in the broadcasting studio, including the use of the tape recorder, editing tape recordings, and the technical procedures needed for the production of programs. Credit not allowed for this course and for Radio 3ab.

6. **RADIO NEWS.** 1 Q. Autumn. 3 cr. Prerequisites, Radio 1, 5, 45, and junior standing. Students may not receive credit for Journalism 45 and Radio 6. Techniques of news gathering, writing, and announcing for the small station.

7. **RADIO ADVERTISING.** 1 Q. Winter. 3 cr. Prerequisites, Radio 1, 5, 45, and junior standing. Students may not receive credit for Journalism 48 and Radio 7. An elementary course in the principles of radio advertising.

45. **RADIO SPEECH.** 1 Q. Autumn. 3 cr. Prerequisite, sophomore standing. 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. Credit not allowed for this course and identical course Speech 45.

46abc. **RADIO AND TELEVISION PROJECTS.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Prerequisites, sophomore standing and 10 cr. in Radio, Speech, or Journalism. Students may enter any quarter. Creation of radio, television and film programs; the writing of continuities; assisting in the production and recording of University programs as assigned. Credit not allowed for this course and identical course Speech 46abc.

## RELIGION

Deane W. Ferm, Director.

Nonsectarian courses in Religion are provided by the affiliated Montana School of Religion, which is supported by gifts and controlled by a Board of Trustees representing the University and supporting denominations.

18. **INTRODUCTORY STUDY OF RELIGION.** 1 Q. Autumn. Winter. 2 cr. Open to all students. An introduction to the purposes, methods, and content of research into the origins and interpretations of scriptures including the Bible, the comparative study of the living religions of the world, the study of Church history, and the psychology of religion.

19. **SURVEY OF THE BIBLE.** 1 Q. Autumn. 3 cr. Open to all students. A study of the backgrounds, origins, content, and basic messages of the Bible. Includes consideration of all the major positions and points of view for the student to investigate, but does not dictate or hold the student responsible for accepting any particular point of view.

23. LIFE AND TEACHINGS OF JESUS. 1 Q. Autumn. 3 cr. Open to all students. An historical and critical study of the life and teachings of Jesus, with an attempt to understand Him in terms of His own first-century environment and to discover the relevance of His teachings for today.

27. PSYCHOLOGY OF RELIGION. 1 Q. Winter. Spring. 3 cr. Prerequisite, Psychology 11. A study of the nature of religious experience; its emergence and development in individuals; its psychological background; and its various forms of expression. Not given in 1955-56.

28. PHILOSOPHY OF RELIGION. 1 Q. Winter. 3 cr. Open to all students. An examination of typical themes in religious philosophy including the problem of the existence of God, the problems of evil, human freedom, prayer, and immortality. Not given in 1956-57. Credit not allowed for this course and the identical course Philosophy 28.

41. CHRISTIANITY TO 1700. 1 Q. Winter. 3 cr. Open to all students. A study of the background and development of the Christian Church, as recorded in the Acts and the Epistles of the New Testament, its spread through the Roman Empire and its growth in Europe, through the Reformation.

42. RELIGION IN AMERICA. 1 Q. Spring. 3 cr. Open to all students. A study of the development and influence of religion in this country, including the effects of colonial development, wars, evangelical revivals and development of denominations and sects, settlement of the West, and industrialization and urbanization of modern life. Includes a study of both Christian and non-Christian religions.

75. COMPARATIVE WORLD RELIGIONS. 1 Q. Spring. 5 cr. Prerequisite, consent of instructor. A comparison of the living religions of the world showing their historical sequence and interrelations, with assigned readings from their literature.

## RESERVE OFFICERS TRAINING CORPS

Coordinator Frank W. Milburn, Lt. Gen. U. S. Army, Ret.

### AIR SCIENCE

Professor Donald C. Jamison (Col. USAF) (Chairman); Associate Professors Edwin C. Frost (Major USAF), George H. Koehler (Major USAF); Assistant Professor Dwight W. Peterson (Captain USAF), John W. Phillips (Captain USAF); Assistants Richard G. Leonard (M/Sgt. USAF), Charles May (M/Sgt. USAF), Mike A. Zurko (M/Sgt. USAF), Arthur D. Jones (S/Sgt. USAF), Frank S. Miller (S/Sgt. USAF).

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 11ab or 12abc .....	9-10	
Physical Education .....	6	
Air Science 1abc, 2abc .....	10	25-26
Major Requirements (Recommended)		
(Group requirements satisfied herein)		
Mathematics 10, 13, 16 or equivalent .....	15	
Physics 11abc or 20abc .....	15	
History 12ab, 146 .....	13	
Political Science 14, 17ab, 20 .....	17	
General 15abc or other Group III subjects .....	15	
Foreign Language (French, German or Spanish 11abc, 13, 15, or equivalent) .....	23	
Air Science 103abc, 104 (required), 105abc .....	18	116
Electives		
(50% must be in upper division courses. A second major is recommended) .....		44-45

186

### BASIC COURSE: AIR AGE CITIZENSHIP EDUCATION

1abc. THE AIRPLANE AND THE AIR AGE. 3 Q. Autumn, winter, spring. 2 cr. autumn and winter quarters. 1 cr. spring quarter. (a) Intro-

duction to AFROTC and to Aviation; Outline of the AFROTC program and a study of the airplane, elementary theory of flight, airplane engines and history of flight. Fundamentals of Global Geography: A study of major geographic regions, and geographical foundations of power. (b) International Tensions and Security Organizations: A study of nations and the forces that affect their destinies, factors of power, opposing ideologies, and international security structures. Military Instruments of National Security: Missions and functions of the armed forces and air power in modern war. (c) Basic Military Training: Practical exercises and instruction in drill and ceremonies, military customs and courtesy. Emphasis is placed on teamwork and proficiency of the individual.

2abc. ELEMENTS AND POTENTIALS OF AIR POWER. 3 Q. Autumn, winter, spring. 2 cr. autumn and winter quarters. 1 cr. spring quarter. Prerequisite, 1abc. (a) Career fields and opportunities for training in the USAF. Elements of Aerial Warfare: Nature and major tasks, targets, utilization and effects of bombs, guns, rockets, and atomic weapons. (b) Elements of Aerial Warfare: Characteristics of propeller driven, jet-powered and pilotless Aircraft, Air Base requirements, Air Operations doctrine and principles. (c) Leadership Laboratory: Continuation of the 1c plus functions, duties and responsibilities of cadet non-commissioned officers.

10. AIR FORCE BAND. 1 Q. Spring. 1 cr. Admission must be approved by the School of Music. Band formations and marching, military music, 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 camp is a requirement for all bachelors degrees.

103abc. AIR FORCE OFFICER TECHNIQUES. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, junior standing. (a) The Air Force Commander and his Staff: Principles of organization, authority, responsibilities and functions of the commander and the staff officer. Problem solving: Scientific methods of problem solving; research, analysis, logic. Principles and techniques of communications including writing and speaking exercises. (b) Instructing in the Air Force: Lesson planning, methods of instruction, instructional aids and evaluation of instruction. The Military Justice System: Uniform Code of Military Justice, non-judicial punishment, courts-martial, pretrial and trial procedure, evidence, boards of officers. Air Navigation: Pilotage, dead reckoning, radio and radar navigation procedures. Weather: A study of meteorological phenomena including air masses and frontal systems. (c) Leadership Laboratory: Practical work as junior officers in the cadet corps, commands and command voice, instructing flight and squadron drill, parades, reviews and inspections. Weather. Air Force Base Functions: A study of the principles of operation, organization of and functions performed by the Air Force Base as an integrated working unit.

104. SUMMER CAMP. No credit. Four weeks at an Air Force Base during the summer after completion of Air Science 103. Organization and functions of an Air Force Base, air crew and aircraft indoctrination, officer orientation, military fundamentals, physical training and individual weapons.

105abc. LEADERSHIP AND AIR POWER CONCEPTS. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisites, senior standing, AS lab, Political Science 155a for 105b. (a) Career Guidance: Review of officer career fields, specialized training and graduate study available. Principles of Leadership and Management: Seminar in leadership and management techniques; application of leadership concepts based on biological behavior, acquired psychological behavior, intense motivation, and internal group relationships. Military Aviation and the Evolution of Warfare: Historical survey of selected campaigns, principles of war, and air power concepts. (b) Military Aspects of World Political Geography: International relationships in the air age, political, economic, and geographic factors dominant in international politics and objective evaluation of the power positions of states and groups of states. (c) Leadership Laboratory: Practical work as cadet officers in staff and command positions in the corps of cadets, preparation for and conduct of the cadet training program and cadet corps ceremonies. Military Aviation and the Evolution of Warfare. Briefing for Commissioned Service: A final course designed to prepare the cadet for active service as a commissioned officer. Includes a review of responsibilities and obligations of an officer, procedures and customs of the service and military life.

140abc. AIR SCIENCE WORKSHOP. 3 Q. Autumn, winter, spring. 2 cr. each quarter. (May be counted towards graduation by Air Science majors only.) Prerequisites, senior standing and consent of instructor. Leadership, Command and Staff exercises.

## MILITARY SCIENCE AND TACTICS

Professor Samuel H. Hays (Lieutenant Colonel, Infantry, USA) (Chairman); Associate Professor Emmrich D. Lamb, Jr. (Major, Armor, USA); Assistant Professor Donald G. Matthews (Captain, Corps of Engineers, USA), Jack L. Demmons (First Lieutenant, Infantry, USA); Assistants Raymond J. Rickett (Master Sergeant, USA), Milton C. Hansen (Master Sergeant, USA).

**HIGH SCHOOL PREPARATION.** In addition to the general requirements for admission to the University, the student needs American History, 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 11ab or 12abc .....	9-10	
Physical Education .....	6	
Military Science 1abc and 2abc .....	10	25-26
<b>Major Requirements</b>		
(Group requirements satisfied herein)		
Mathematics 10, 13, 16 or equivalent .....	15	
Physics 11abc or 20abc .....	15	
History 12ab .....	10	
Political Science 14, 17a, 20, 155ab .....	19	
General 15abc or other Group III subjects .....	15	
Foreign Language (French, German or Spanish 11abc, 13, 15 or equivalent) .....	23	
Military Science 111abc, 112abc, 113, 120a .....	20	117
<b>Electives</b>		
(50% must be in upper division courses. A second major in one of the areas listed above is recommended)		
		44-45
		186

**BASIC COURSE: MILITARY TRAINING FOR CITIZENSHIP**

1abc. **INTRODUCTION TO THE ARMY.** 3 Q. Autumn, winter, spring, 2 cr. autumn and winter quarters. 1 cr. spring quarter. Students may enter any quarter. (a) Introduction to Army organizational principles, missions, and chain of command; practical instruction in Individual Weapons and Marksmanship with emphasis on preliminary marksmanship, shooting techniques and instructional methods to enable the student to coach others. (b) American Military History, emphasizing men, factors and events which have led to the organizational, tactical and psychological patterns found in our Army today. (c) Leadership, Drill and Exercise of Command, basic and progressive training in leadership through practical exercises and instruction in drill, ceremonies, military customs and courtesy. Emphasis is placed on the teamwork and proficiency required of the individual.

2abc. **ADVANCED INDIVIDUAL TECHNIQUES.** 3 Q. Autumn, winter, spring. 2 cr. autumn and winter quarters. 1 cr. spring quarter. Students may enter any quarter. Prerequisite, 1abc. (a) Map and Aerial Photograph Reading to include their reading and employment, terrain evaluation, marginal information, military symbols, orientation, resection and the Military Grid References System; familiarization with Infantry automatic weapons. (b) Recoilless and Indirect Fire Weapons and Gunnery, to include mechanical functioning, nomenclature, principles of fire control and techniques of employment. (c) Leadership, Drill and Exercise of Command, a continuation of 1c, with emphasis on functions, duties and responsibilities of junior leaders.

**ADVANCED COURSE: OFFICER TRAINING**

The advanced course prepares the student for a commission as a Second Lieutenant in any branch of the United States Army Reserve. Admission is on application of the student and selection by the Professor of Military Science and the President of the University. Once begun, successful completion of the six quarters and summer camp is a requirement for all bachelor degrees, unless sooner honorably discharged.

111abc. **PRINCIPLES AND TECHNIQUES OF THE MILITARY LEADER.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Students may enter any quarter. (a) 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. (b) Small unit tactics, including

the principles and techniques of leading small units from the squad to the company in offensive and defensive operations. (c) Leadership laboratory and communications, including practical work in instructing and directing military drill of individuals and small units and the principles and methods of Army communication systems.

112abc. MILITARY MANAGEMENT. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite 111abc. Students may enter any quarter. (a) 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. (b) Military Administration and Logistics, including personnel and supply management and procedures, troop movements by foot and motor, motor pool management; military justice and courts-martial procedure with practical work in moot court. (c) Leadership laboratory; practical exercise of leadership functions as officer in command positions during periods of drill and ceremonies; orientation for life on active military service; seminar on military and leadership problems.

113. SUMMER CAMP. No credit. Six weeks at an Army training center taken after completion of 111c 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.

120abc. MILITARY SCIENCE WORKSHOP. 3 Q. Autumn, winter, spring. 2 cr. each quarter. (May be counted for graduation by Military Science majors only.) (a) Practical work as instructor and assistant instructor in rifle marksmanship or crew served weapons. Assigned work as unit commander or staff officer in Cadet Battalion. (b) Exercise of Command or staff responsibilities in planning and directing activities of a military organization. (c) Conduct of staff or command responsibilities with emphasis on direction and supervision of drill and ceremonies conducted by Cadet Battalion.

## SECRETARIAL-HOME ARTS

Following are the requirements leading to the Bachelor of Arts degree with a major in Secretarial-Home Arts.

University Requirements	Credits	
English Composition .....	9-10	
Physical Education .....	6	15-16
<b>Group Requirements</b>		
Group III (General 15abc recommended) .....	12-15	
Group I .....	12-15	24-30
<b>Special requirements outside major</b>		
Economics 10, Anthropology 15, Sociology 17 .....	15	
History 12ab .....	10	
Political Science 14 .....	5	
Psychology .....	5	35
<b>Major Requirements</b>		
Home Economics 17abc, 24, 80, 119, 124, 129 .....	35	
(No limit as to number of credits up to 65:)		
Business Administration 20 or 21 (4 quarters), 22 (3 quarters), 25, 26, 27 .....	29	64
(Students may elect additional courses in Business Administration not to exceed 12 credits.)		
Free Electives .....		48-41
		186

## SOCIAL SCIENCES

Following are the requirements leading to the Bachelor of Arts degree with a major in Social Sciences:

University Requirements	Credits	
English Composition .....	9-10	
Physical Education .....	6	
Military Science (men) .....	10	15-26
<b>Group Requirements</b>		
Group I .....	12-15	
Group III .....	12-15	24-30
Foreign Language .....	15	
<b>Major Requirements</b>		
Economics 14ab, 10, or 19 and 8 credits of upper division work .....	21	
History 12ab, 21 (2 quarters) and 103 or 132 or 119.....	22	
Political Science 14, 17ab, 20, 60, 108 .....	21	
Anthropology 14 or 15, Sociology 17, 25 and 4 credits of upper division work .....	22	
Fourteen credits of upper division work in one of the above fields in addition to those listed .....	14	100
Free Electives .....		32-15
		136

For teaching certificate elect 24 hours in Education.

## SOCIOLOGY AND ANTHROPOLOGY

Professor Gordon Browder (Chairman); Associate Professor Harold Tascher; Assistant Professors Milton Colvin, Robert L. James, Carling I. Malouf; Instructor James W. Carroll.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN SOCIOLOGY, ANTHROPOLOGY, OR SOCIAL WORK.** In addition to the general requirements for graduation listed earlier in the catalog fifty credits in departmental courses are required for the Bachelor of Arts degree with a major in Sociology, Anthropology, or Social Work.

- A. **SOCIOLOGY:** At least 35 credits must be in sociology courses, including Sociology 16, 25, and 118. Anthropology 14 or 15 must be taken. Remaining credits for the major may be selected from Anthropology and Social Work courses. Students selecting the sociology major must complete Economics 14ab. When possible, Mathematics 25 should be taken. It is recommended that students planning to take graduate work elect a foreign language.
- B. **ANTHROPOLOGY:** At least 30 credits must be in anthropology courses. Sociology 16 and 118 must be completed. Remaining credits may be selected from sociology and social work courses. Mathematics 25 is recommended. Religion 75 may be offered as part of the required credits for the major.
- C. **SOCIAL WORK:**

1. **GENERAL INFORMATION:** This curriculum provides a social science concentration with emphasis on social work. It leads to a major in social work, and is designed to meet the needs of:

- a. The student who wishes to prepare for graduate training in professional social work.
- b. The student who wishes to prepare for social work positions which do not require graduate professional training.
- c. The general student who wants to be prepared for intelligent and responsible participation in community life.

A student who plans to enter a professional school of Social Work should select courses in line with his chief interests such as in social case work, social group work, community organization and welfare administration, social welfare research, community recreation, school social work or personnel work in industry.

- 2. **MAJOR REQUIREMENTS:** A minimum of 30 credits in social work courses is required. During the first two years, the following courses should be taken: Anthropology 14 or 15, Economics 14ab, History 12ab or 21bc, Political Science 17ab, Psychology 11, and Sociology 16 and 17.

One course in addition to those listed above must be taken in each of the fields of anthropology, economics, history, political science, psychology and sociology to a total of at least 20 credits. These courses should be selected from the following: Anthropology 142; Economics 105, 107, 110, 113ab, 114, 115, 120, 130, 161; History 122, 125, 126, 147; Political Science 60, 116ab, 120ab, 124; Psychology 115, 116, 129, 130ab; Sociology 100, 119, 120, 121, 122, 127, 129.

- D. **COMBINED ECONOMICS AND SOCIOLOGY:** 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: Economics 101, 104, 111 or 112, 113a; Anthropology 14 or 15; Sociology 119, 120, 122, 129. The remaining credits for a major will be selected in counsel with the student's adviser. A minimum of 60 credits is required for the combined economics and sociology major.

## SOCIOLOGY

### FOR UNDERGRADUATES

16. **ELEMENTARY SOCIOLOGY.** 1 Q. Autumn. Winter. Summer. 4 cr. Prerequisite, sophomore standing. A general study of interhuman relations.
17. **SOCIAL PROBLEMS.** 1 Q. Winter. Spring. Summer. 5 cr. Open to all students. A general study of social and personal disorganization.
25. **DEVELOPMENT OF SOCIAL THOUGHT.** 1 Q. Autumn. 4 cr. Prerequisite, sophomore standing. The development of social thought from earliest times to the establishment of sociology.
26. **COLLECTIVE BEHAVIOR.** 1 Q. Winter. 3 cr. Prerequisites, sophomore standing and either Soc. 16 or Psych. 11. A consideration of the theories relating to mass behavior. A study of the characteristics of such social aggregates as crowds, mobs, and publics. Offered in alternate years.
31. **SOCIAL INSTITUTIONS.** 1 Q. Spring. 4 cr. Prerequisite, sophomore standing. An examination of contemporary institutions with reference to their structure, functions, and recruitment.

### FOR UNDERGRADUATES AND GRADUATES

100. **COURTSHIP AND MARRIAGE.** 1 Q. Any quarter. 3 cr. Prerequisite, junior standing. A general consideration of factors in courtship and marriage.
116. **SOCIAL MOVEMENTS.** 1 Q. Spring. 3 cr. Prerequisites, junior standing and Sociology 16. A study of selected reform and other movements with emphasis on their organizational, functional, and behavioral characteristics. Offered in alternate years.
117. **SOCIAL STRATIFICATION.** 1 Q. Spring, 4 cr. Summer, 3 cr. Prerequisites, junior standing and Soc. 16, or consent of instructor. An analysis of the class system in contemporary society in terms of social class theory, class behavior, and current research in social stratification in American society. Offered in alternate years.
118. **SOCIAL SCIENCE METHODS.** 1 Q. Autumn. 4 cr. Prerequisites, junior standing and 10 credits in Social Science courses. An introduction to the methods used in studies in the Social Sciences.
119. **RURAL REGIONS.** 1 Q. Winter. 4 cr. Offered in alternate years. Prerequisites, junior standing and either Sociology 16 or 17. The organization and social relationships of rural life; the rural community; major types of farming regions in the United States; problems of rural life. Special emphasis on Montana and the Northwest.
120. **POPULATION.** 1 Q. Spring. 4 cr. Prerequisites, junior standing and Sociology 16. A quantitative and qualitative analysis of world population; vital statistics and population change, migration, and immigration.
121. **URBAN SOCIOLOGY.** 1 Q. Winter. 4 cr. Offered in alternate years. Prerequisites, junior standing and Sociology 16. A study of the rise of urbanism; the ecological setting and demographic trends of cities; the social relationships and organization of city life.
122. **CRIMINOLOGY.** 1 Q. Spring. 5 cr. Prerequisites, junior standing and either Sociology 16 or 17. A study of the causes, prevention, detection, and correction of crimes.
126. **FOUNDATIONS OF MODERN SOCIOLOGY.** 1 Q. Winter. 4 cr. Prerequisites, junior standing and Sociology 16. Discussion of selected sociological problems arising from the theories of Durheim, Weber, and contemporary writers.

127. SOCIAL CONTROL. 1 Q. Winter. 4 cr. Prerequisites, junior standing and Sociology 16. A study of the institutional and non-institutional processes and methods by which persons and groups are controlled. Offered in alternate years.

129. THE FAMILY. 1 Q. Autumn. 4 cr. Prerequisites, junior standing and Sociology 16. A comparative, historical and analytical study of the family.

190. ADVANCED PROBLEMS. Any quarter. 1-2 cr. Prerequisite, senior standing and consent of instructor. May be repeated to a maximum of 6 credits.

195abc. SEMINAR. 3 Q. Autumn, winter, spring. 2 cr. each quarter. Students may enter any quarter. Prerequisites, senior standing and 10 credits in sociology. Autumn, small group behavior; winter, social theory; spring, social problems.

#### FOR GRADUATES

201. GRADUATE RESEARCH. Any quarter. Credit variable. Prerequisite, graduate standing.

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

### ANTHROPOLOGY

#### FOR UNDERGRADUATES

14. SOCIAL ANTHROPOLOGY. 1 Q. Autumn. Summer. 5 cr. Open to all students. A study of institutions as exemplified in primitive religion, economics, political structures, art, and music.

15. ELEMENTARY ANTHROPOLOGY. 1 Q. Winter. 5 cr. Open to all students. An analysis of the culture concept and of the processes of culture growth and change, with special consideration given to invention, diffusion, and acculturation. Students who completed the former course Sociology 15a may not receive credit for 15.

18. SOCIAL ORGANIZATION OF PRIMITIVE PEOPLES. 1 Q. Spring. 4 cr. Prerequisite, sophomore standing. A study of the social structure of non-literate peoples: family, kinship structure, kin and local groups associations, social classes, and political aggregates.

19. RACE AND MINORITIES. 1 Q. Winter. 3 cr. Prerequisite, sophomore standing. Problems of assimilation of racial and cultural minorities. Offered in alternate years.

#### FOR UNDERGRADUATES AND GRADUATES

138. PREHISTORIC CULTURES. 1 Q. Winter. 3 cr. Prerequisite, junior standing. A survey of prehistoric man and his cultures, up to the dawn of history, in Europe and the Near East. Offered in alternate years.

139. ARCHAEOLOGY OF MONTANA. 1 Q. Spring. 3 cr. Prerequisites, junior standing and consent of instructor. The origins and distribution of aboriginal cultures in Montana and surrounding regions. Classes meet twice weekly, and students are required to attend a minimum of three field trips in which actual archaeological sites will be excavated, and techniques demonstrated. One credit is allowed for the field trips.

142. CULTURE AND PERSONALITY. 1 Q. Spring. 3 cr. Prerequisite, junior standing. A study of the role of culture in the formation of personality. Offered in alternate years.

144. INDIANS OF SOUTH AMERICA. 1 Q. Winter. 4 cr. Prerequisite, junior standing. A survey of the cultures of the Indians of South America. Offered in alternate years.

145. INDIANS OF NORTH AMERICA. 1 Q. Autumn. 4 cr. Prerequisite, junior standing. A survey of the native cultures of North America, north of the Rio Grande.

146. PEOPLES OF AFRICA. 1 Q. Spring. 4 cr. Prerequisite, junior standing. A study of the aboriginal cultures of Africa. Offered in alternate years.

147. PEOPLES OF ASIA. 1 Q. Spring. 4 cr. Prerequisite, junior standing. The peoples and cultures of Asia, including India, China, Japan, Siberia, and the Near East. Offered in alternate years.

S151. THE INDIANS OF MONTANA. 1 Q. Summer. 3 cr. Prerequisite, junior standing or consent of instructor. A description of the history and cultures of the Indian tribes of Montana. Designed primarily for non-majors in anthropology.

171. CULTURE AND THEORY. 1 Q. Winter. 2 cr. Prerequisite, junior standing and Sociology 25. A brief course in the development of theory and method in cultural anthropology to the present, and a considera-



tion of various archaeological, ethnological, and socio-psychological theories in the light of historical anthropology. Offered in alternate years.

180. ARCHAEOLOGICAL SURVEY. 3-9 cr. Any quarter in which field parties are organized. Prerequisite, junior standing. This course may be repeated to a maximum of 18 credits. A field course in Montana archaeology.

181. FIELD WORK: NORTHWEST ETHNOLOGY. 1-5 cr. Any quarter in which field parties are organized. Prerequisite, junior standing. This course may be repeated to a maximum of 15 credits. A field course in the study of Indian tribes of Montana and related areas.

190. ADVANCED PROBLEMS. Any quarter. 1-2 cr. Prerequisite, senior standing and consent of instructor. May be repeated to a maximum of 6 credits.

#### FOR GRADUATES

201. RESEARCH. Any quarter. Credit variable. Prerequisite, graduate standing.

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

### SOCIAL WORK

#### FOR UNDERGRADUATES

30. THE FIELD OF SOCIAL WORK. 1 Q. Winter. 4 cr. Prerequisite, sophomore standing. An introduction to the field of social work and of social work functions. Development of modern social work and the distinctive features of the profession.

S124. JUVENILE DELINQUENCY. 1 Q. Summer. 3 cr. Prerequisite, junior standing. Nature and extent of the problem. The role of courts, social agencies, and schools in its prevention and treatment.

S125. GROUP METHODS IN TEACHING. 1 Q. Summer of 1955 only. Five weeks. 3 cr. Prerequisite, junior standing. Methods designed to achieve knowledge of course content, initiative and leadership, and growth and development of students. Both theory and practice.

130. CASE STUDIES IN SOCIAL WORK. 1 Q. Spring. 4 cr. Prerequisite, senior standing and 12 credits in social work including Sociology 30. A detailed analysis of social work principles, functions, and methods as illustrated by case-record material drawn from a variety of social welfare settings.

132. INTRODUCTION TO THE GROUP PROCESS. 1 Q. Spring. 4 cr. Prerequisite, junior standing. The place of group experience in a democracy. Principles and methods involved in working with groups. Group dynamics.

133. COMMUNITY RELATIONS. 1 Q. Autumn. 4 cr. Summer, 3 cr. Prerequisite, senior standing. The place of community organization in a democracy. Principles and methods of meeting community needs. Inter-group dynamics.

134. FIELD PRACTICE, COMMUNITY SERVICES LABORATORY. 3 Q. Autumn, winter, spring. May be entered any quarter. 2-4 cr. each quarter to a maximum of 10. Prerequisites, senior standing and Sociology 30. Direct experience in local health and welfare agencies as a volunteer. Analysis and evaluation of experience in terms of social work principles and methods. Two-hour discussion, 3-9 hours volunteer service in selected community agencies.

135. CHILD WELFARE SERVICES. 1 Q. Winter. 4 cr. Prerequisite, senior standing. 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.

136. PUBLIC ASSISTANCE. 1 Q. Autumn. 4 cr. Prerequisite, junior standing. 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.

170abc. RECREATIONAL LEADERSHIP. 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, junior standing. Students may enter any quarter. (a) Philosophy of recreation, theory and practice of group leadership and program media skills in relation to various age groups. (b) An investigation of the forces, resources and interests required to provide a total community recreation program. (c) Philosophy of camping, theory and practice of group leadership and recreational skills in relation to organized camping. Administration under joint supervision with the Department of Health and Physical Education. Students may not receive credit for this course and the identical course H. & P.E. 170abc.

## WILDLIFE TECHNOLOGY

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

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN WILDLIFE TECHNOLOGY.** In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the degree of Bachelor of Science in Wildlife Technology.

**FRESHMAN YEAR:** Botany 11ab, 12; Chemistry 11abc or 13ab; English 11ab; Mathematics 10 or 13; 0-5 group requirement credits; plus required Health and Physical Education and Military or Air Science.

**SOPHOMORE YEAR:** Zoology 10, 11, 15, 23; Physics 11a, 25 or 20abc; 8-15 group requirement credits; plus required Health and Physical Education and Military or Air Science.

**JUNIOR YEAR:** Forestry 12, 20a, 120; Botany 22 and 151 or 160; Mathematics 25; Zoology 24, 107 or 108, 109 or 110; 5-10 elective credits.

**SENIOR YEAR:** Geology 11a; Zoology 107 or 108, 109 or 110; Botany 151 or 160; Bacteriology 19 or 103; 15-25 elective credits.

Suggested general electives: Bacteriology 19 or 103; Botany 126; Chemistry 13c, 19, 103; Forestry 25, 138; General 150; Geology 11b; Modern Languages 11abc, 13, 15; Zoology 102, 105, 107, 108, 109, 110, 113, 125, 129, 131, 132, 150.

Students primarily interested in Aquatic Biology should elect courses from the following list: Botany S163, S174; Chemistry 17; Zoology 113, S161, S166.

Students primarily interested in big game should elect courses from the following list: Botany 164; Forestry 140; Zoology 150.

## ZOOLOGY

Professors Ludvig G. Browman (Chairman), Gordon B. Castle, Philip L. Wright; Associate Professors Royal B. Brunson, John J. Craighead, George F. Weisel; Assistant Professor Richard T. Huling; Instructors Robert S. Hoffman, Doris M. Stewart.

**SPECIAL REQUIREMENTS FOR THE UNDERGRADUATE DEGREE IN ZOOLOGY.** In addition to the general requirements for graduation listed earlier in the catalog the following special requirements must be completed for the Bachelor of Arts degree with a major in Zoology: 54 credits in Zoology including Zoology 10, 11, 15, 23, 102, 111ab, 125, 126, 128, 3 credits of 129, and 140ab.

The following must also be completed: Botany 11ab, 12 or S61 or 161b; Chemistry 11abc or 13ab, and 13c, or 19; and Physics 11abc or 20abc.

Students who contemplate graduate work in Zoology should elect during their junior or senior years Bacteriology 19, 103, and Zoology 105. It would be wise for prospective graduate students to secure a reading knowledge of both French and German if possible.

A reading knowledge of a modern foreign language at the level of attainment expected of a student who has passed four quarters in a language as demonstrated by a suitable achievement test, or 23 to 25 credits in French, German or other language approved by the department is required.

Students who plan to secure a certificate to teach should consult the Dean of the School of Education or the Registrar.

Senior examinations are given only to candidates for honors.

### FOR UNDERGRADUATES

10. **GENERAL ZOOLOGY.** 1 Q. Autumn. Summer. 5 cr. Open to all students. Certain basic biological principles as exemplified by the study of the characteristics of animal protoplasm and selected invertebrates, and a vertebrate form.

11. **GENERAL ZOOLOGY.** 1 Q. Winter. 5 cr. Prerequisite, Zoology 10. An intensive laboratory course in the morphology, anatomy, and phylogeny of the invertebrates.

15. **FIELD ZOOLOGY.** 1 Q. Spring. 3 cr. Prerequisite, Zoology 10. A field and laboratory course in the collection, identification and preservation of animals.

23. **COMPARATIVE VERTEBRATE ZOOLOGY.** 1 Q. Spring. 5 cr. Prerequisites, Zoology 10 or one laboratory course in zoology and sophomore

standing. The comparative anatomy, morphology, development and phylogeny of the vertebrates.

24. HUMAN PHYSIOLOGY. 1 Q. Spring. Summer. 5 cr. Prerequisites, sophomore standing or two quarters of college zoology. An overview of the normal physiology of blood, circulation, respiration, digestion, excretion, irritability, locomotion, coordination and reproduction.

#### FOR UNDERGRADUATES AND GRADUATES

101. GENERAL COMPARATIVE EMBRYOLOGY. 1 Q. Autumn. 5 cr. Prerequisites, Zoology 111ab and junior standing. The early stages of development of the invertebrates and vertebrates, including meiosis, fertilization, cleavage, formation of the germ layers and early organogenesis. Given in 1956-57 and alternate years.

102. VERTEBRATE EMBRYOLOGY. 1 Q. Winter. 5 cr. Prerequisites, Zoology 23 and junior standing. The early stages of development of the vertebrates including organogenesis, with emphasis on birds (chick) and mammals (pig).

105. HISTOLOGY AND MICROTECHNIQUE. 1 Q. Winter. 5 cr. Prerequisites, Zoology 23, junior standing and consent of the instructor. Basic tissues are studied, and a limited amount of work is done on organology. Microtechnique with emphasis on the paraffin method.

107. AQUATIC BIOLOGY. 1 Q. Spring. 5 cr. Prerequisites, Zoology 15, Botany 12, and junior standing. A survey of the biota of fresh water with emphasis upon the invertebrate fauna, with some consideration of their relationship to the food chains and habitats of aquatic vertebrates. Collection, ecological relations, identification and taxonomic position of aquatic organisms below vertebrates.

108. ORNITHOLOGY. 1 Q. Spring. 5 cr. Prerequisites, Zoology 23 and junior standing. The structure, classification and life histories of birds. Weekly field trips. Students are expected to provide themselves with binocular field glasses.

109. MAMMALOLOGY. 1 Q. Winter, 1956. Autumn, 1956. 5 cr. Prerequisites, Zoology 23 and junior standing. The classification, identification and life histories of mammals. Field trips are taken on which mammals are collected and studied. Some field trips are taken on Saturday.

110. ICHTHYOLOGY. 1 Q. Autumn. 5 cr. Prerequisites, Zoology 23, junior standing and consent of the instructor. The systematics and distribution of the more important orders of fish, their collection and identification. Certain fundamentals of the physiology of fish are considered. The recognition and life histories of local fish. Field trips are taken.

111ab. INVERTEBRATE ZOOLOGY. 2 Q. Autumn, winter. 5 cr. Prerequisites, three quarters of college zoology and junior standing. The anatomy, embryology, and phylogeny of the invertebrate animals.

113. FISHERY SCIENCE. 1 Q. Autumn. 3 cr. Prerequisites, Zoology 107, 110 and senior standing. 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 will be taken.

118. FOREST ENTOMOLOGY. 1 Q. Spring. 3 cr. Prerequisites, Zoology 10 or equivalent and junior standing. A study of the major groups of forest insects, their effects on forests and forest products, their life histories, distribution, ecology and control.

125. GENETICS. 1 Q. Autumn. 5 cr. Prerequisites, Zoology 23 or Botany 22, and junior standing. The mechanisms of heredity, involving consideration of Mendelian inheritance, linkage systems, chromosomal aberrations, extra-chromosomal inheritance, and their relationship to structure and function.

126. EVOLUTION. 1 Q. Winter. 3 cr. Prerequisites, Botany 11ab and 12, and Zoology 10 and 15 and junior standing. The theories of evolution from the historical point of view; the nature of evolutionary processes, the evidence for evolution, and the factors of evolution. Not a laboratory course. Students may not receive credit for this course and the identical course Botany 126.

128. ANIMAL ECOLOGY. 1 Q. Spring. 5 cr. Prerequisites, Zoology 15, Botany 12 or equivalent, junior standing and consent of the instructor. Zoology 107 or 111ab is recommended. A study of the relationships between animals and their environment with special emphasis on the invertebrates. (Field trips are taken every Saturday.)

129. BIOLOGICAL LITERATURE. 3 Q. Autumn, winter, spring. 1 cr. each quarter. Prerequisites, senior standing and 20 credits in Botany or Zoology and consent of the chairman of the Department of Botany or Zoology. Reviews of recent literature as a survey of the trend of investigation and experimentation in biological fields. Reports of special studies.

131. ADVANCED VERTEBRATE ZOOLOGY. 1 Q. Any quarter. 1-5 cr. Prerequisites, 25 credits in Zoology including Zoology 23, senior standing and consent of instructor. (I) Morphology and Taxonomy; (II) Physiology; (III) Ecology. Primarily a problems type course, involving semi-independent work. By variation of content as indicated, the course may be repeated during succeeding quarters.

132. ADVANCED INVERTEBRATE ZOOLOGY. 1 Q. Any quarter. 1-5 cr. Prerequisites, 25 credits in Zoology including Zoology 107 or 111ab, senior standing and consent of the instructor. (I) Morphology and Taxonomy; (II) Physiology; (III) Ecology. Primarily a problems course involving semi-independent work. By variation of content as indicated, the course may be repeated during succeeding quarters.

133. VERTEBRATE ENDOCRINOLOGY. 1 Q. Spring. 3 cr. Prerequisites, Zoology 23, 102, junior standing and consent of the instructor. The microscopic anatomy and the normal physiology of the major glands of internal secretion of vertebrates. Correlative problems employing surgical and experimental techniques may be undertaken as part of the laboratory work.

140ab. VERTEBRATE PHYSIOLOGY. 2 Q. Autumn, winter. 5 cr. each quarter. Prerequisites, Zoology 23 or equivalent, three quarters of college chemistry, junior standing and consent of the instructor. (a) General physiological properties of protoplasm; blood, body fluids, and circulation; respiration and excretion. (b) Digestion, nutrition and intermediary metabolism; excitation, conduction, responses, senses; endocrines and reproduction.

150. PROSEMINAR IN WILDLIFE. 1 Q. Winter. 3 cr. Prerequisites, senior standing. Zoology 108 and 109. Student reports of original literature in wildlife with emphasis on census methods, productivity, predation, the effects of refuges, and the planting of exotics.

165. ENTOMOLOGY. 1 Q. Autumn. 5 cr. Prerequisites, Zoology 10, 15 and junior standing. A study of insects, including their structure, classification, life histories, distribution and ecology.

### COURSES OFFERED AT THE BIOLOGICAL STATION

S15. FIELD ZOOLOGY. 1 Q. Summer. 3 cr. Prerequisite, one course in college zoology.

S108. ORNITHOLOGY. 1 Q. Summer. 3 cr. Prerequisites, one laboratory course in Vertebrate Zoology and junior standing.

S109. MAMMALOLOGY. 1 Q. Summer. 6 cr. Prerequisites, Comparative Vertebrate Zoology and junior standing.

S110. ICHTHYOLOGY. 1 Q. Summer. 3 cr. Prerequisites, Comparative Vertebrate Anatomy and junior standing.

S161. LIMNOLOGY. 1 Q. Summer. 6 cr. Prerequisites, General Zoology and one college course in Chemistry and junior standing.

S164. NATURAL HISTORY OF INVERTEBRATES. 1 Q. Summer. 3 cr. Prerequisites, two quarters of college Zoology and junior standing.

S165. ENTOMOLOGY. 1 Q. Summer. 6 cr. Prerequisites, two laboratory courses in Zoology including Invertebrate Zoology and junior standing.

S166. AQUATIC INSECTS. 1 Q. Summer. 3 cr. Prerequisites, two laboratory courses in Zoology including Invertebrate Zoology and junior standing, and consent of instructor.

S199. SPECIAL PROBLEMS IN ZOOLOGY. 1 Q. Summer. 2-5 cr. Prerequisites, adequate background courses in the subject, senior standing and consent of the instructor.

S200. ADVANCED ZOOLOGICAL PROBLEMS. 1 Q. Summer. Credit variable. Prerequisites, graduate standing and consent of the instructor.

S261. LIMNOLOGICAL METHODS. 1 Q. Summer. 3 cr. Prerequisites, graduate standing, Limnology and at least one year of college chemistry.

### FOR GRADUATES

200. ADVANCED ZOOLOGICAL PROBLEMS. 1-5 Q. Autumn. Winter. Spring. Credit variable. Opportunity is given graduate students with sufficient preparation and ability to pursue original investigations.

210. VERTEBRATE ECOLOGY. 1 Q. Spring. 5 cr. Prerequisites, 6 or more courses in biology, including Zoology 108 or 109, Botany 51, and Math 25. The impact of substrata and environmental factors on productivity, populations, cycles, and intra and interspecific relationships among vertebrates. Examples from the wildlife field will be considered when possible. Field work will be conducted.

299. THESIS. Any quarter. Credit variable. Maximum credit allowable 15.

MONTANA STATE UNIVERSITY  
Missoula

SUMMARY OF REGISTRATION, 1954-55

COLLEGES, SCHOOL OR COURSE	Graduates		Seniors		Juniors		Sophomores		Freshmen		Specials		Totals					
	Total	Men	Total	Men	Total	Men	Total	Men	Total	Men	Total	Men	Total	Men				
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....				
Arts and Sciences	63	20	83	123	59	182	139	65	204	313	160	473	425	234	659	1064	539	1603
Fine Arts	8	10	18	19	14	33	13	14	27	22	16	38	31	23	54	93	77	170
Business Administration	9	2	11	115	20	135	129	32	161	.....	.....	.....	.....	.....	.....	253	54	307
Education	47	25	72	25	15	40	25	29	54	.....	.....	.....	.....	.....	.....	97	69	166
Forestry	11	11	22	45	11	56	48	2	50	72	1	73	107	107	214	288	3	296
Journalism	3	1	4	19	11	30	18	7	25	15	11	26	22	10	32	77	40	117
Law	52	1	53	36	36	72	20	2	22	16	3	19	10	4	14	88	1	89
Pharmacy	10	10	20	16	1	17	20	2	22	438	191	629	595	271	866	2027	793	2820
TOTALS	203	59	262	398	120	518	392	151	543	438	191	629	595	271	866	2027	793	2820
Unclassified	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	15	18
TOTALS	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2030	808	2838
Summer Quarter, 1954	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	587	415	1002
TOTALS	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2617	1223	3840
Less duplicates	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	178	68	246
Total Enrollment of Residence Students	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2439	1155	3594
Correspondence and Extension Students	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	528	624	1152
TOTALS	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2967	1779	4746
Less duplicates	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	148	122	270
TOTAL FOR YEAR, 1954-55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2819	1657	4476

## INDEX

	Page		Page
Absences .....	35	Military Science .....	135
Accreditation of University.....	22	Music .....	79
Activities .....	36	Pharmacy .....	124
Administrative Officers .....	3	Philosophy .....	129
Admission .....	25	Physical Education .....	105
General Requirements .....	25	Physical Sciences .....	127
By Examination .....	25	Physics .....	127
By Transfer .....	26	Political Science .....	112
Conditional .....	25	Pre-Medical Sciences .....	128
Of Special Students .....	26	Psychology .....	130
To the School of Law .....	118	Radio .....	132
Unclassified Students .....	26	Religion .....	132
Affiliated School of Religion.....	132	ROTC .....	133
Arts and Sciences, College of.....	39	Russian .....	91
Associate Dean of Students .....	32	Secretarial-Home Arts .....	136
A. S. M. S. U. Fee .....	23	Social Sciences .....	137
Athletics .....	36	Social Work .....	140
Biological Station .....	20	Sociology .....	138
Board, Executive .....	3	Spanish .....	91
Building Fee .....	23	Speech .....	73
Business Research, Bureau of.....	46	Wildlife Technology .....	141
Calendar, State University .....	2	Zoology .....	141
Law .....	2, 118	Credit Load .....	27
Certificate to Teach .....	57	Credits for Degree .....	29
Changes of Enrollment .....	27	For Major .....	29
College of Arts and Sciences .....	39	Dean of Students .....	32
Composition Requirement .....	30	Debate .....	37
Conditional Admission .....	25	Degrees .....	28
Correspondence Study .....	31	Candidacy for .....	28
Course Number System .....	39	Credits Required for .....	29
Courses of Instruction:		With Honors .....	32
Air Science .....	133	Deposit, Room .....	34
Anthropology .....	139	General .....	23
Art .....	76	Directory, Official .....	3
Arts, The .....	40	Doctor's Degree .....	103
Astronomy .....	123	Duplication of Courses .....	27
Bacteriology and Hygiene .....	40	Elementary Teaching Certificate	58
Biological Sciences .....	42	Employment .....	35
Botany .....	42	Enrollment, Summary of .....	144
Business Administration .....	44	Entrance .....	25
Chemistry .....	52	Examination for Admission.....	25
Dance .....	77	Examinations, Senior .....	31
Drama and Theatre .....	77	Executive Board .....	3
Economics .....	54	Family Housing .....	34
Education .....	56	Fees .....	22
English .....	69	Change of Enrollment .....	24
Fine Arts .....	76	For Special Purposes .....	24
Foreign Languages .....	89	Late Payment .....	24
Forestry .....	92	Late Registration .....	24
French .....	89	Payment of .....	24
General Courses .....	97	Removal of Incompletes .....	24
Geology .....	98	Special Examination .....	24
German .....	90	Transcript of Record .....	24
Greek .....	90	Financial Obligations .....	22
Health .....	105	Foreign Language Requirement..	31
History .....	109	Fraternity and Sorority Houses..	34
Home Economics .....	113	Grade Point Requirements .....	29
Introductory Courses:		On Transfer Credits .....	29
Biological Sciences .....	97	Grading System .....	28
Humanities, General .....	97	Graduate School .....	100
Italian .....	90	Abstract .....	102
Journalism .....	115	Admission to .....	100
Latin .....	91	Assistantships & Fellowships..	105
Law .....	118	Candidacy for an Advanced	
Liberal Arts .....	121	Degree .....	102
Mathematics .....	121	Courses and Grades .....	101
Medical Technology .....	123	Credit Requirements .....	101

	Page		Page
Degree Requirements .....	100	Repetition of Course .....	27
Degrees Offered .....	100	Required Courses .....	27, 30
Doctor's Degree .....	103	Requirements for Admission .....	25
Examinations .....	102	Requirements for Graduation .....	28
Extension and Correspondence		Requirements of Particular	
Courses .....	102	Curricula .....	31
Fees .....	105	Residence Halls .....	34
Language Requirement .....	102	Residence Requirements .....	31
Residence Requirement .....	101	R. O. T. C. ....	133
Study Load .....	101	Scholarships and Prizes .....	35
Thesis .....	102	School of Business Administration	
Time Limit for Degree .....	102	tion .....	44
Transfer of Graduate Credit .....	102	School of Education .....	56
Graduation Requirements .....	28	School of Forestry .....	92
Group Requirements .....	30	School of Journalism .....	115
Health Service .....	32	School of Law .....	118
High Schools, Admission from .....	25	School of Music .....	79
Honors, Senior Examinations for .....	32	School of Pharmacy .....	124
Housing .....	33	School of Religion .....	132
Incomplete Grades .....	28	Secondary Teaching Certificate .....	57
Independent Work .....	28	Senior Examinations .....	31
Instruction, Organization of .....	39	Senior Examinations for Honors .....	32
Interscholastic Games .....	37	Social Functions .....	36
Library, The .....	22	Societies .....	37
Limited Registrants .....	23	Special Attendance Fee .....	23
Living Accommodations .....	33	Special Examination Fee .....	24
Loans .....	35	Special Methods Courses .....	63
Major, Credits for .....	29	Special Students, Admission of .....	26
Master's Degrees .....	100	Student Fees .....	22
Medicine .....	128	Student Loans .....	35
Military Service Credit .....	31	Student Marriages .....	36
Montana State University .....	19	Student Organizations .....	35
Museums, The .....	19	Student Services .....	32
Music Fees .....	79	Student Standards .....	35
Non-Resident Fee .....	23	Summer College .....	22
Number System of Courses .....	39	Teacher's Certificate .....	57
Official Directory .....	3	Teaching Majors and Minors .....	64
Organization of Instruction .....	39	Testing Center .....	32
Orientation Week .....	26	Transcripts, Fee for .....	24
Placement Service .....	33	Transfer Students, Admis-	
Prizes and Scholarships .....	35	sion of .....	26
Public Service Division .....	21	Typographical Laboratory and	
Publications .....	37	Press .....	21
Railway Fare Refund .....	25	University Testing Center .....	32
Refunds, Fees .....	24	Veteran Registration .....	28
Registration Days .....	2	Credits .....	31
Registration Fee .....	23	War Service Fee Exemptions .....	23
Registration .....	26	Wildlife Research Unit .....	20
Maximum .....	27	Withdrawals .....	27
Statistical, Summary of .....	144	Women's Cooperative House .....	34
Removal of Incomplete Fee .....	24		







**CONDENSED CALENDAR**  
**THE UNIVERSITY OF MONTANA**  
**1955-56**

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**MONTANA STATE UNIVERSITY, Missoula**

Summer Quarter opens June 13, 1955  
Autumn Quarter opens September 13, 1955  
Winter Quarter opens January 3, 1956  
Spring Quarter opens March 26, 1956  
Summer Quarter opens June 11, 1956  
Autumn Quarter opens September 23, 1956

**MONTANA STATE COLLEGE, Bozeman**

Summer Quarter opens June 13, 1955  
Autumn Quarter opens September 22, 1955  
Winter Quarter opens January 3, 1956  
Spring Quarter opens March 26, 1956  
Summer Quarter opens June 11, 1956  
Autumn Quarter opens September 24, 1956

**MONTANA SCHOOL OF MINES, Butte**

Summer Field Work opens June 13, 1955  
First Semester opens September 26, 1955  
Second Semester opens February 6, 1956  
Summer Field Work opens June 11, 1956  
First Semester opens September 24, 1956

**WESTERN MONTANA COLLEGE OF EDUCATION, Dillon**

Summer Quarter opens June 13, 1955  
Autumn Quarter opens September 19, 1955  
Winter Quarter opens January 3, 1956  
Spring Quarter opens March 19, 1956  
Summer Quarter opens June 11, 1956  
Autumn Quarter opens September 24, 1956

**EASTERN MONTANA COLLEGE OF EDUCATION, Billings**

Summer Quarter opens June 13, 1955  
Autumn Quarter opens September 19, 1955  
Winter Quarter opens January 3, 1956  
Spring Quarter opens March 19, 1956  
Summer Quarter opens June 11, 1956  
Autumn Quarter opens September 24, 1956

**NORTHERN MONTANA COLLEGE, Havre**

Summer Quarter opens June 8, 1955  
Autumn Quarter opens September 19, 1955  
Winter Quarter opens January 3, 1956  
Spring Quarter opens March 19, 1956  
Summer Quarter opens June 6, 1956  
Autumn Quarter opens September 24, 1956

3